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# Predictors of Graduate Students' Self-Efficacy for Working with Persons with Autism Spectrum Disorder and Their Families

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# PREDICTORS OF GRADUATE STUDENTS' SELF-EFFICACY FOR WORKING WITH PERSONS WITH AUTISM SPECTRUM DISORDER AND THEIR FAMILIES

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This dissertation is dedicated to Olive and Desi.
My children, my heart.

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About three years into my doctoral program, I received a gift from a colleague and dear friend—a book called *Balcony People* by Joyce Landorf Heatherley. Balcony people are the people who cheer you on and affirm your personal journey. This book reminded me how incredibly lucky I am to have so many people "on my balcony," especially during the past six years as I have pursued my doctoral studies.

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## ABSTRACT

As diagnoses of autism spectrum disorder (ASD) continue to climb, the need for knowledgeable and competent professionals is critical. Research has shown that child symptoms and behavior are related to parent stress and mental health and that this relationship is bidirectional, suggesting the need for the use of a family-centered care model (FCC) that addresses both child and parent needs. While social workers are well-prepared to provide FCC to persons with ASD and their families, few social workers enter the field of developmental disabilities. Professionals more involved in the ASD field, such as special educators, often are equipped to work with persons with ASD, but not necessarily their families. Although FCC is used widely in the field of early intervention, it is not consistently used with older children, adolescents, and young adults with ASD, despite families' continued need for FCC. As posited in Social Cognitive Career Theory, self-efficacy is a salient concept for understanding the career interests, choices, and practice behaviors of pre-professional students. Thus, this cross-sectional, correlational study examined predictors of graduate social work and special education students' self-efficacy for providing FCC to persons with ASD and their families. The presented study provided a comprehensive description of students' demographics, educational background characteristics, knowledge about ASD, attitudes toward working with persons with ASD, contact with persons with ASD, training in the areas of ASD and FCC, and self-efficacy for professional practice. Differences between social work and special education students on measures of these key variables were assessed. A difference in students' self-efficacy for providing FCC to young children with ASD as compared to emerging adults with ASD was also explored. The current study also examined interrelationships among major variables of interest and identified empirically relevant correlates of the dependent variable. Ordinary least squares multiple regression analyses yielded a set of

predictors (attitudes, self-directed learning, and self-efficacy for professional practice) that explained 38% of the variance in self-efficacy for providing FCC to persons with ASD and their families. Implications for social work practice, education, and research are discussed.

# CHAPTER 1. INTRODUCTION

Autism spectrum disorder (ASD) is a developmental disability that affects social interaction, communication, and behavior (American Psychiatric Association [APA], 2014). When an individual is diagnosed with ASD, the whole family is affected. Research has shown that child ASD symptoms and problem behavior is associated with parenting stress and mental health and that this relationship is bidirectional, which suggests that treatments should focus both on improving both child and parent outcomes (Cridland, Jones, Magee, & Caputi, 2014; Karst & Van Hecke, 2012; Smith, Greenberg, & Mailick, 2012). This has led to a focus on family-centered care (FCC) in the field of ASD (Wells, 2011); however, it is not readily accessible to parents, and professionals report many barriers to its implementation, including poor professional preparation (Iannuzzi, Kopecky, Broder-Fingert, & Connors, 2015; Lotze, Bellin, & Oswald, 2010; Shannon, 2004). Most of the professional literature examining FCC focuses on its use with families of young children with special health care needs despite the utility of the model to be used with families of older children, adolescents, and young adults (Clay & Parish, 2016; Gobovitch & Curtin, 2009). Social workers are uniquely suited to provide FCC due to their educational preparation, which is rooted in biopsychosocial, systems, developmental, and life course frameworks (Dababnah, Parish, Brown, & Hooper, 2011; Iannuzzi, et al., 2015; Morgo-Wilson, Davidson, & Bruder, 2014; Nolan, Orlando, & Liptak, 2007); however, few social workers enter the field of developmental disabilities (Whitaker & Arrington, 2008), and research suggests that social work education programs, in general, do not adequately prepare students for working with this population (Laws, Parish, Scheyett, & Egan, 2010; Russo-Gleicher, 2008; Werner, 2011). Additionally, parents express a desire for more support from social workers during times of transition and stress (Newsome, 2008). Professionals from other human service

disciplines that are more involved in the ASD field, such as special educators, are better prepared for working with individuals with ASD, but not with their families (Busby, Ingram, Bowran, Oliver, & Lyons, 2012; Shannon, 2004).

Social Cognitive Career Theory (SCCT) can be used to understand how self-efficacy (i.e., a person's beliefs in his or her ability to complete certain tasks; Bandura, 1997) influences how pre-professional students develop interests and make choices to work with as well as practice successfully with individuals with ASD and their families (Lent & Brown, 1996). Self-efficacy is a salient theoretical concept for understanding career interest; thus, research examining graduate social work and special education students' self-efficacy for providing FCC is warranted. The purpose of this dissertation study was to explore predictors of self-efficacy for providing FCC to persons with ASD and their families among students in graduate-level social work and special education programs, and to explore differences on key variables of interest (e.g., knowledge, attitudes, contact, training) between social work and special education students.

## ASD

ASD is a lifelong developmental disability characterized by difficulties with social interaction, communication, and behavior (APA, 2014). Prior to the publication of the most recent edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; APA, 2014), ASD referred to a group of developmental disabilities, including autistic disorder, Asperger's syndrome, and pervasive developmental disorder not otherwise specified (APA, 2000). The DSM-5 (APA, 2014) revised the diagnostic criteria for ASD and collapsed these separate diagnoses into one unified diagnosis of ASD with specifiers for severity. ASD is characterized by impairments in social interaction; communication difficulties; and restrictive activities, interests, and behaviors (APA, 2014).

The Centers for Disease Control and Prevention (CDC) has estimated that 1 in 59 children is diagnosed with ASD (Baio et al., 2018), and this rate has more than doubled between 2000 and 2014 (CDC, 2018). ASD is often complicated by health and mental health co-morbidities, such as epilepsy and anxiety; and over half of persons with ASD also have an accompanying intellectual disability (APA, 2014). While ASD is usually diagnosed in early childhood and treatments are made available that lessen symptoms over time, most individuals with ASD continue to experience social, communication, and behavior challenges throughout their lives (APA, 2014; Seltzer, Shattuck, Abbeduto, & Greenberg, 2004).

## ASD and Families

Life course theory can be used as an overarching framework to understand how individuals with ASD and their families experience transitions across the lifespan. Life course theory focuses not only on how a person develops over time but also how a person's environment shapes this trajectory. In this way, the life course theory is a systems approach (Von Bertalanffy, 1950). Most systems or ecological theories focus on the micro, or individual; mezzo, or family and organization; and macro, or institution, levels (Bronfrenbrenner, 1994). However, the life course theory widens the view of environment to include the dimension of history (Elder, 1994). Life course theory has five central themes: (1) continuity or discontinuity, (2) linked lives, (3) human agency, (4) life and history, and (5) timing of lives (Elder, 1994). The themes of linked lives and continuity and discontinuity have particular relevance to individuals with ASD and their families.

### Linked Lives

The concept of linked or interdependent lives refers to the interaction between individuals' social worlds across the life span (Elder, 1994). Given the complex and pervasive

nature of symptoms and problem behaviors associated with ASD, parents of children with ASD often experience greater levels of parenting stress than parents of children with other disabilities (Schieve, Blumberg, Rice, Visser, & Boyle, 2007) and parents of neurotypical children (Keena, Newman, Gray, & Rinehart, 2016). Parents of children with ASD also have higher rates of depression than those of children without ASD (Cohrs & Leslie, 2017).

Family factors often affect child ASD symptoms and vice versa (Woodman, Mawdsley, & Hauser, 2015). When treatments alleviate child behavior and symptoms, parents' stress levels may also improve; and when parents receive interventions that lower their stress levels, the child may indirectly experience a reduction in problem behavior and symptom severity (Woodman et al., 2015). Although most research focuses on mothers, these associations are not limited to the relationship between the person with autism and their mother. Relationships between partners, sibling-sibling relationships, and father-child relationships impact the family environment for families of persons with ASD (Hastings & Lloyd, 2007; Karst & Van Hecke, 2012). These reciprocal and multidirectional associations continue over time as children with ASD age into adolescence and adulthood (Smith et al., 2012).

**Continuity versus Discontinuity**

A core theme in life course theory is continuity or discontinuity in life pathways. Life course theory emphasizes the importance of transitions, or changes from one phase of life to another (Elder, 1994). A developmental phase can only be understood when considering the context of what has already happened to a person in the past and what will happen in his or her future, and the transition from one phase to another can either enhance the protective qualities or exacerbate the risk of past experiences (Johnson, Crosnoe, & Elder, 2011). Two key transitions for persons with ASD and their families occur during young childhood and emerging adulthood.

The experiences that individuals with ASD and families have during young childhood influence individual and family outcomes later in the life course (e.g., Henninger & Taylor, 2013; Smith, Seltzer, Tager-Flusberg, Greenberg, & Carter, 2008).

## Young Childhood

Young childhood, which encompasses the prenatal period through age 8 (Irwin, Siddiqi, & Hertzman, 2007), is when parents generally first suspect that their child may exhibit signs of ASD (Autism Speaks, 2013). The path to obtaining a correct diagnosis is often long and frustrating; and once a diagnosis is received, parents can experience a variety of emotional reactions (Neely, Amatea, Echevarria-Doan, & Tannen, 2012). The diagnosis of ASD affects not only the child and his or her parents but the entire family system, including siblings and even grandparents (Negri & Castorina, 2014). After diagnosis, parents face the task of locating and accessing appropriate early intervention services for their child, often without professional guidance (Midence & O'Neill, 1999).

**The diagnosis process.** While experts generally agree that ASD can be diagnosed reliably at 2 years old (Cox et al., 1999; Stone et al., 1999) and early screening efforts can identify children at risk for ASD between the ages of 14 and 16 months (Dumont-Mathieu & Fein, 2005; Stone, McMahon, & Henderson, 2008), many children do not a receive a diagnosis until much later (Christensen et al., 2016). Research has shown that there are disparities in timely diagnoses for children from families of racial minorities (Mandell, Ittenbach, Levy, & Pinto-Martin, 2007; Mandell, Listerud, Levy, & Pinto-Martin, 2002; Mandell et al., 2009) and low socioeconomic status (National Academies of Science, Engineering, and Medicine, 2015). Severity of symptoms may also contribute to the timeliness of diagnosis, with children at a higher functioning level being diagnosed later than lower functioning children (Christensen et

al., 2016). The average lag between when parents first notice a concern and receiving an official diagnosis of ASD is 2-3 years (Howlin & Moore, 1997; Siklos & Kern, 2007).

A common theme families report regarding diagnosis is the difficulty of tolerating the ambiguity of the process (Neely et al., 2012; Negri & Castorina, 2014). Pediatricians and other healthcare providers sometimes take a "wait and see" approach to parents' concerns about their child's development (Solomon & Chung, 2008). Professionals can be hesitant to present the possibility of ASD due to their poor preparation for handling the uncomfortable situation of bearing bad news, which can lead to diagnoses of less specific and severe conditions such as speech delay or sensory issues rather a full neuropsychological evaluation to diagnose ASD (Solomon & Chung, 2008). Parents often seek second or third opinions, and disagreements between families and professionals can ensue, which also leads to leading to delayed diagnosis (Neely et al., 2012).

**Family reactions to diagnosis.** While the reactions of siblings and extended family to a child's diagnosis of ASD can have a significant impact on the family unit, most research has focused on parents' reactions (Negri & Castorina, 2014). Parents can have a wide range of reactions to their child's diagnosis of ASD. Common emotional reactions include shock, guilt and anger (Neely et al., 2012). Although many parents have positive experiences with identification and diagnosis (Hastings & Taunt, 2002), it is more common for parents to express frustration (Osborne & Reed, 2008). Parents grieve the hopes and dreams the held for their child that may no longer come to fruition due to their child's limitations (Neely et al., 2012; Negri & Castorina, 2014). When a child is diagnosed with ASD after healthcare professionals have taken a "wait and see" approach, parents report feeling angry that their concerns were originally minimized, especially because valuable time has passed when the child could have been

receiving early intervention (Neely et al., 2012; Solomon & Chung, 2012). Mothers sometimes report wondering if their actions during pregnancy, such as taking medications or flying on airplanes, contributed to their child having ASD (Neely et al., 2012). Although a definite cause of ASD has not been established, parents also may feel responsible for their child's condition due to research suggesting a polygenetic component to the etiology of ASD, thinking that they passed the condition on to their child (Negri & Castorina, 2014).

Not all family reactions to diagnosis are negative (Hastings & Taunt, 2002). Parents sometimes report feeling relief and affirmation from receiving a diagnosis after having suspicions of a developmental problem (Midence & O'Neill, 1999; Neely et al., 2012). Families also may experience a renewed sense of unity (Turnbull & Turnbull, 2001) and self-efficacy (Neely et al., 2012). Parents sometimes report an increase in overall family functioning (Blacher, Feinfeld, & Kraemer, 2007; Frain et al., 2007).

**Early intervention.** Although early intervention has been linked to the best short- and long-term outcomes for persons with ASD (Henninger & Taylor, 2013), many parents report a lack of professional support for accessing needed services after diagnosis (Midence & O'Neill, 1999; Osborne & Reed, 2008). Parents often have difficulty navigating the myriad of, sometimes controversial, contradicting, and expensive, treatments available for ASD (Neely et al., 2012; Thyer & Pignotti, 2010). There is generally a gap in time between receiving a diagnosis and beginning treatment in which children receive no services, and this lag is even more pronounced for low-income families that also often experience delays in obtaining a timely diagnosis (Yingling, Hock, & Bell, 2018). Research has shown that low-income families must wait an average of 3 years to receive Medicaid-funded early intervention services for children with ASD (Yingling et al., 2018).

Many evidence-based early intervention approaches for ASD, such as the University of California at Los Angeles Young Autism Project Model, the Early Start Denver Model, and the Lovass method, involve intensive (20-40 hours a week), behavioral methods focused the development of communication, social, and pre-academic skills (Halliday, Houston, Kinney, & Myers, 2012). Coordinating these services can be costly and time-consuming, and sometimes families opt to have a parent leave the workforce to focus on ensuring the needs of their child with ASD are met (Kogan et al., 2008; Vohra, Madhavan, Sambamoorthi, & St. Peter, 2014). Although more options for clinic-based services have emerged since states have passed states laws mandating insurance coverage for autism-related therapies, many early intervention models encourage home-based intervention. In-home therapy programs can be convenient, but they also can add stressors to the family environment. With the intensity and costliness of services, parents sometimes become trained to provide therapies to their child. Parents participating as therapists in their child's treatment can report difficulties differentiating their roles as a therapist and a parent, which can lead to parental stress and impaired treatment fidelity (Bearrs, Burrell, Stewart, & Schaill, 2015). Additionally, families experience a lack of privacy with therapists and service providers being in their homes for extended periods of times (Bearrs et al., 2015; Solomon & Chung, 2012).

**Emerging Adulthood**

Diagnoses of ASD has been increasing, and children who were diagnosed with ASD during the "diagnostic boom" of the 1990s and early 2000s are now entering adulthood (Roux et al., 2015). While there is an established knowledge base regarding young children with ASD, scholarly and public attention has only recently turned to outcomes and effective interventions for adolescents and adults with ASD and their families (e.g., Laugeson, Gantman, Kapp,

Orenski, & Ellingsen, 2015; Roux et al., 2015; Smith, et al., 2012). The transition out of high school and into adulthood is a very stressful time for families of individuals with ASD (e.g., Smith & Anderson, 2014). There is a tremendous need for knowledgeable and ethical human service professionals who can meet the unique needs of individuals with ASD and their families during the transition to adulthood; however, there are numerous obstacles to recruiting, training, and retaining quality providers who can effectively work with this population (Gerhardt & Lainer, 2011).

**Defining emerging adulthood.** Theoretical conceptualizations of transition to adulthood often center around the accomplishment of a set of specific developmental tasks, such as leaving the family home, finishing school, beginning employment, and marrying and having children (Fussell & Furstenberg, 2005). Arnett (2000) developed a theory of emerging adulthood, which accounts for variability in the trajectories of young adults' lives. Arnett's (2000) theory of emerging adulthood proposes alternative measures of successful transition focused on internalized milestones, such as independence in decision making, responsibility for one's actions, and financial independence, rather than demographic transitions rooted in societal expectations.

Many individuals with ASD do not meet the traditional milestones of the transition to adulthood, and internalized concepts proposed by Arnett (2000) have not yet been studied in emerging adults with ASD. Therefore, defining "transition to adulthood" for this population is difficult based on these mainstream conceptualizations, which has led researchers to use age groups to define emerging adulthood for individuals with intellectual and developmental disabilities (Blaucher, 2001), and ASD in particular (Taylor, 2009). For the current study, emerging adulthood refers to ages 18 to 26.

**"Falling off the cliff."** After leaving high school, individuals with ASD have difficulties accessing services needed to help them to be successful in adult life, such as speech, physical, and occupational therapy, social services, and case management (Roux, Shattuck, Rast, Rava, & Anderson, 2015). This phenomenon is often called "falling off the cliff" by professionals and advocates in the field of ASD (Gerhradt & Lainer, 2011).

After the age of 22, students are no longer entitled to services that were provided by the public school system under the Individuals with Disabilities Education Act (IDEA). Additionally, health insurance companies often refuse to cover services for individuals after age 18 (Shattuck, Wagner, Narendorf, Sterzing, & Hensley, 2011), such as applied behavior analysis, the most widely accepted therapy for treating ASD, despite the evidence base supporting its use in adulthood (Gerhardt & Lainer, 2011). Individuals with ASD and their families face a fragmented and underfunded adult service delivery system upon graduating from high school. Families are often faced with long waiting lists for the few services, such as respite, supported employment, and personal care assistance, that are available (Shattuck et al., 2011; Gerhardt & Lainer, 2011).

**Family experiences during emerging adulthood.** Autism symptoms and problem behavior generally lessen as individuals with ASD grow older (Billstedt, Gillberg, & Gillberg, 2005; Esbensen, Seltzer, Lam, & Bodfish, 2009; Seltzer et al., 2004). These improvements in behavioral (Taylor & Seltzer, 2010) and adaptive functioning Smith, Maenner, & Seltzer, 2012) often stagnate after high school. Emerging adults with ASD show worse employment, independent living, and community involvement outcomes than both their peers without disabilities and with disabilities other than ASD (Shattuck et al., 2011; Roux et al., 2015). Along with the lack of appropriate services, the rigid thinking that accompanies symptoms of ASD also

may make transitions difficult for emerging adults with ASD (Smith & Anderson, 2014).

Parents of adolescents and adults with ASD also experience disparities in well-being as they report higher rates of parenting stress (Hayes & Watson, 2013) and depressive symptoms (Abbeduto et al., 2004; Hartley, Seltzer, Head, & Abbeduto, 2012) than parents of typically developing adolescents and adults and those with developmental disabilities other than ASD. Parents frequently assume the responsibility of coordinating and creating services for their children, which can limit and interrupt their participation in the workforce and create stress (Kogan et al., 2008). This is pronounced during the transition to adulthood when families have lost the respite and services provided in high school and are searching for appropriate adult services (Gerhardt & Lainer, 2011). The loss of parents' hopes and dreams for their child experienced in young childhood may reemerge, especially if this grief was not fully processed, as parents face an immediate reality that their child may not reach full independence (Neely et al., 2012).

Some research suggests that these additional stressors may lead to negative changes in family environment (Baker, Smith, Greenberg, Seltzer, & Taylor, 2011) and poorer behavioral outcomes upon high school exit for emerging adults with ASD (Taylor & Seltzer, 2010). In a longitudinal study, Barker et al. (2011) found that mothers were more critical of their children after high school exit than while enrolled in school. The researchers also found that these changes in maternal criticism predicted more behavior problems exhibited by the individual with ASD (Barker et al., 2011).

Recent studies have found a more positive trend in certain family environment outcomes as individuals with ASD grow older. In a longitudinal study of families of adults with ASD, increased maternal praise and strong mother-child relationships were associated improvements in

social behavior for adults with ASD (Woodman, Smith, Greenberg, & Mailick, 2015). In a similar study using the same sample, mothers who exhibited more positivity and warmth were more likely to have adult children who obtained post-secondary education, were employed, and/or lived independently; and, in a similar vein, maternal criticism was not significantly related to adult trajectories (Woodman, Smith, Mailick, & Greenberg, 2016).

## FCC

Research emphasizes the importance of addressing the family unit; thus, the field of children with special healthcare needs (SHCNs), including developmental disabilities like ASD, has adopted a family-centered model of care (FCC; Wells, 2011). FCC is a practice model in which providers and family members work together as partners to define roles and treatment goals. FCC practice posits that parents of children with ASD and other SHCNs are regarded as experts on their children's daily lives and current needs (Woodside, Rosenbaum, King, & King, 2001).

### Defining FCC

The American Academy of Pediatrics (AAP, 2003) defined FCC as a practice model focused on service providers partnering with parents through mutual respect to make healthcare and education decisions for children with special needs, like ASD. Christon and Myers (2015) provided a concise definition of FFC as "collaborative and respectful partnerships between professionals and families" (p. 55). The National Center for Family-Centered Care (NCFC, 1989) recommended a set of 10 principles, and proposed that FCC: (1) acknowledges the family as the constant in a child's life, (2) builds on family strengths, (3) supports the child in learning about and participating in his or her care and decision-making, (4) honors cultural diversity and family traditions, (5) recognizes the importance of community-based services, (6) promotes an

individual and developmental approach, (7) encourages family-to-family support, (8) supports youth as they transition to adulthood, (9) encourages policies, practices, and systems that are family-friendly and family-centered in all settings, and (10) celebrates successes.

**Barriers to FCC**

Although FCC is widely accepted as a best practice for working with individuals with ASD and their families (Wells, 2010), researchers have found that providers report barriers to its implementation and parents report difficulties accessing it in their communities. For example, lack of training in topics such as effective communication (Iannuzzi et al., 2015) and family psychosocial issues (Lotze et al., 2010; Shannon, 2004) among ASD professionals can lead to low self-efficacy for performing related tasks, and, ultimately, fewer FCC practice behaviors (Christon & Myers, 2015). Research also shows that both parents and professionals report that the lack of continuity of care contributes to the difficulties professionals experience in adhering to the FCC model (Hodgetts, Nicholas, Zwaigenbaum, & McConnell, 2013). Parents have voiced a need for knowledgeable professionals who are able to provide care coordination based on family needs (Nolan et al., 2007).

**The Role of Social Workers and Other Professionals in Providing FCC**

Social workers are well-suited to implement FCC and to address barriers to implementing FCC, given that social work education is grounded in conceptually relevant frameworks, such as the biopsychosocial, systems, developmental, and life course perspectives (Iannuzzi et al., 2015; Morgo-Wilson et al., 2014; Nolan et al., 2007). Scholars recommend that social workers take a leadership role on interdisciplinary teams providing FCC to families of children with ASD (Iannuzi et al., 2015). Such interdisciplinary teams typically include pediatricians, nurses, physical therapists, occupational therapists, speech therapists, general and special educators,

psychologists, counselors, and social workers. Despite the emphasis on FCC in the field of ASD, healthcare providers often are trained to use a "medical model," which designates the professional as the "expert" that makes diagnoses and sets treatment goals with little input from patients or their families (MacKean, Thurston, & Scott, 2015). Since its inception in 1975, IDEA has required public schools to include parents of children with disabilities, including ASD, in decision making related to their children's education. The IDEA mandate requires school professionals, including special educators, to use a family-centered approach and understand family needs and issues; however, research has shown that educators often report feeling pressured to prioritize the needs of the school and district over those students and their families (Hodgetts et al., 2013).

Despite the increasing prevalence of ASD diagnoses, few social workers enter the field of developmental disabilities (Whitaker & Arrington, 2008). When social workers do work with individuals with ASD, they are often undervalued and underutilized. For example, insurance companies and Medicaid often reimburse social work services at lower rates than those of other services provided by similar professionals, such as psychologists, or do not cover social work services at all (Shannon, 2004). Although social workers are generally well trained to provide FCC, social work education programs often do not provide adequate coursework or field experiences to prepare students for working with people with developmental disabilities, including those with ASD, upon graduation (Laws et al., 2010; Russo-Gleicher, 2008; Werner, 2011). Preliminary research has also found that social work students have misconceptions about ASD (Dinecola, 2012; Dinecola & Lemieux, 2015); negative attitudes about working with persons with ASD (e.g., beliefs that people with ASD do not improve as a result of social work interventions; Russo-Gleicher, 2008; Werner, 2011); and low levels of interest in working with

this population (Aviram & Katan, 1991; Butler, 1990; Rubin & Johnson, 1984). Other disciplines, such as special education, speech and language pathology, and medicine, have more established roles in ASD diagnosis and treatment; although studies have shown that professionals in these latter disciplines show low levels of knowledge, similar to those of social workers (e.g., Heidgerken, Geffken, Modi, & Frakey, 2005; Helps, Newson-Davis, & Callias, 1999). Professionals from these disciplines also report low levels of perceived competence in addressing family psychosocial needs (Shannon, 2004). As rates of ASD diagnoses continue to increase, the need for knowledgeable and competent professionals to work with individuals with ASD and their families is dire (CDC, 2018).

## Purpose of this Study

The primary goal of this descriptive, exploratory dissertation study was to identify predictors of self-efficacy for providing FCC to persons with ASD and their families among graduate social work and special education students. The current study provided a rich description of knowledge about ASD, attitudes toward working with ASD, contact with persons with ASD, ASD-related training, self-directed learning in the area of ASD, FCC-related training, self-efficacy for engaging in professional practice. The present study compared knowledge, attitudes, contact, training, and self-efficacy between special education and social work students. These findings help clarify the roles of social workers and special educators in the field of ASD as well as inform interdisciplinary models for providing FCC to persons with ASD and their families. Findings from the current study provide guidance to social work and special education training programs for improvement in professionals' self-efficacy for providing FCC to persons with ASD and their families.

# CHAPTER 2. REVIEW OF THE LITERATURE

Despite the growing need for knowledgeable human service providers who can effectively provide family-centered care (FCC) to persons with ASD, few social workers, who are uniquely trained to provide FCC, enter the field of ASD (Whitaker & Arrington, 2008); and professionals that predominately work with persons with ASD and their families, such as special educators, report lower levels of confidence in using FCC practices (Shannon, 2004) and employing actual FCC practice behaviors (Christon & Myers, 2015). Social Cognitive Career Theory (SCCT) can be used to understand how self-efficacy influences how pre-professional students develop interests and make choices to work with, as well as provide FCC to, individuals with ASD and their families (Lent & Brown, 1996). Self-efficacy is a salient theoretical concept for understanding career interest; thus, research examining graduate social work and special education students' self-efficacy for providing FCC is warranted. However, scant research has been undertaken with social work and special education professionals and students to examine factors related to self-efficacy for providing FCC to individuals with ASD and their families in their future professional practice. A scholarly review of literature published since 1999, which is when federal law mandated the use of FCC in the delivery of healthcare and education for persons with disabilities (Gabovitch & Curtin, 2009), yielded only 18 relevant studies. This chapter summarizes the conceptual articles and empirical studies examining self-efficacy for working with persons with ASD and their families, and presents the implications of the findings of these studies.

## Self-Efficacy

The concept of self-efficacy originates from Bandura's (1977, 1982, 1986, 1995, 1997) social cognitive theory. Bandura (1986) defined self-efficacy as "people's judgments of their

capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). Lent and Brown (1996) applied the social cognitive framework to career development and proposed SCCT as a potentially useful framework that explains career interest, choice, and performance processes, in terms of interactions among self-efficacy and outcome expectations. SCCT can be used to understand career behaviors of students in human service professions. Additionally, SCCT proposes theoretical explanations of self-efficacy that inform the proposed study. This section explains the tenets and principles of SCCT.

Self-efficacy is derived from four primary sources: (1) personal performance achievements, or previous success in performing a task; (2) vicarious experience, or observing others complete a task; (3) social persuasion, or feelings of social pressure to perform a task; and (4) physiological and emotional states, such as level of anxiety associated with engaging in a behavior (Bandura, 1986; Lent & Brown, 1996). Outcome expectations are a person's beliefs about the outcomes of engaging in a behavior. SCCT posits that individuals are more likely to choose a career goal if they believe it will lead to positive outcomes, such as high pay, flexible hours, approval from family, and helping others (Lent & Brown, 1996).

Lent and Brown (1996) further suggested that career interests are largely influenced by self-efficacy beliefs and outcome expectations and that this relationship is bidirectional and independent of an individual's ability. According to this perspective, self-efficacy beliefs and outcome expectations influence interests, and interests can impact self-efficacy and outcome expectations. Individuals must be exposed to new environments that allow for significant learning experiences that alter self-efficacy and outcome expectations, and, indirectly, career interests (Lent & Brown, 1996).

According to SCCT, career interests influence a person's career goals (e.g., intention to pursue a particular career path), although only under supportive conditions and when goals are clear, specific, strongly held, and publicly stated (Lent & Brown, 1996). Thus, actual career choices are often more affected by self-efficacy beliefs, outcome expectations, and environmental factors rather than career interests alone (Lent & Brown, 1996; Lent, Brown, & Hackett, 2000). Some examples of environmental influences include family support, finances, education attainment, and available opportunities (Lent et al., 2000).

SCCT also includes a model of career performance that provides a framework for examining a person's level of success and persistence in obstacles in a given career path (Lent & Brown, 1996). Ability refers to a composite of a person's past achievements successes, aptitudes, innate potential, and acquired knowledge. It affects a person's performance, or actual practice behaviors, directly as well as indirectly, by influencing self-efficacy and outcome expectations (Lent & Brown, 1996). The SCCT performance model also suggests that performance peaks when self-efficacy modestly exceeds a person's current abilities (Lent & Brown, 1996).

SCCT may be a potentially helpful framework for understanding how students in human service professions develop interest in working with, make choices to work with, and eventually effective practice with individuals with ASD and their families. SCCT suggests that self-efficacy is linked to career interests, choices, and performance; thus, empirical exploration of this concept is warranted (Lent & Brown, 1996). This study examined the extent to which conceptually and empirically relevant variables predict self-efficacy among social work and special education graduate students for providing FCC to persons with ASD and their families.

## Self-Efficacy for Engaging in Professional Practice

Measures of self-efficacy regarding professional practice are frequently used in social work and education research. Education researchers have assessed pre-service and practicing teachers' self-efficacy in a wide range of applications and settings (Morris, Usher, & Chen, 2017). In the field of social work, self-efficacy has been used as an outcome to assess courses (Unrau & Beck, 2004; Unrau & Grinnell, 2005; Woody et al., 2014), field practicum experiences (Ahn, Boykin, Hebert, & Kulkin, 2012; Fortune, Lee, & Cavazos, 2005), and curriculums (Rishel & Majewski, 2009). Scales have been developed and tested for reliability and validity that measure students' self-efficacy for foundation practice (Holden, Meenaghan, & Anastas, 2003; Holden, Anastas, & Meenaghan, 2005) and research and evaluation (Holden, Barker, Kuppens, & Rosenberg, 2017a; Holden, Barker, Meenagahn, & Rosenberg, 1999; Holden, Barker, Rosenberg, & Onghena, 2008). Additionally, researchers have promoted the use of self-efficacy measures to assess outcomes necessary for the CSWE-accreditation of social work education programs (Garcia & Floyd, 2002; Holden, Anastas, Meenaghan, & Metry, 2002; Holden, Barker, Kuppens, & Rosenberg, 2017b; Holden et al., 2005; Holden et al., 2008; Holloway, 2008).

In an examination of the psychometric properties of the Self-Efficacy Regarding Social Work Competencies Scale, Holden et al. (2017b) found that social work students reported relatively high levels of self-efficacy at pretest. These authors suggested that this is likely due to students' overconfidence in their abilities as they do not yet understand the behavioral process of the task for which they have rated their self-efficacy. Ahn et al. (2012) compared self-efficacy as measured by the Foundation Practice Self-Efficacy Scale (Holden et al., 2003; Holden et al., 2005) between students enrolled in beginning courses and students enrolled in field practicum at

the end of their BSW program of study. These authors found that students in the beginning courses reported moderate to high levels of self-efficacy and students enrolled in practicum had high levels of self-efficacy. This finding is consistent with the finding of Holden et al. (2017b) that participants had high levels of self-efficacy at pretest, and Ahn et al.'s (2012) finding could also possibly be explained by an inflation of beginning social work students' self-efficacy. Ahn et al. (2012) also confirmed their hypothesis that practicum students have higher rates of self-efficacy than those enrolled in beginning courses, suggesting that students' self-efficacy may increase as they progress through the BSW program and after beginning practicum. However, this finding need to be confirmed by longitudinal studies following the same group of students.

## Predictors of Self-Efficacy

This review yielded only one study to explore bivariate correlates of self-efficacy in working with persons with ASD and their families and related variables (Ruble, Usher, & McGrew, 2011), and two studies that used a multivariate approach to explain predictors of self-efficacy regarding working with this population among social work or special education professionals or graduate students (Corona, Christodulu, & Rinaldi, 2017; Dinecola & Lemieux, 2015). Other studies examined self-efficacy as a predictor of social work students' career interest in working with specific populations (Olson, 2011; Werner & Grayzman, 2011; Zhang, Wang, Losinski, & Katsiyannis, 2014). One study examined self-efficacy as a predictor of FCC practices among ASD professionals (Christon & Myers, 2015). All of these studies were deemed relevant to the current study and are reviewed in this section.

### Predictors of Self-Efficacy in Working with Individuals with ASD and their Families

Ruble et al. (2011) conducted a preliminary investigation of sources of special educators' self-efficacy in working with students with ASD using Bandura's social cognitive theory as a

framework. Bandura (1997) proposed that self-efficacy could be derived from: 1) mastery, 2) vicarious experience, 3) social persuasions, and 4) physiological and emotional states. The researchers used a convenience sample of 35 primarily female teachers from 2 states (Ruble et al., 2011). Most of the participants had an advanced degree, and all had experience and formal training in teaching students with ASD. Self-efficacy was measured using the 24-item Teacher Interpersonal Self-Efficacy Scale (TISES; Brouwers & Tomic, 2001); mastery was assessed using the number of years of teaching; teachers' perceptions of support from principals was used as a proxy for social persuasions and was measured using items from Multifactor Leadership Questionnaire (MLQ; Avolio, Bass, & Jung, 1999); and the 16-item Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1997) was used to measure physiological and emotional states. Ruble et al. (2011) examined interrelationships among these key variables and found that self-efficacy for classroom management was significantly and negatively related to emotional exhaustion and depersonalization. These findings indicate that teacher burnout is negatively related to teacher's confidence in their classroom management skills with students with ASD. When teachers are overwhelmed and exhausted, they report less confident in their abilities to manage students' behavior in the classroom. Similarly, a positive relationship between personal accomplishments and self-efficacy for classroom management emerged, suggesting that when teachers view their performance positively, they have higher rates of self-efficacy for managing the classroom.

Dinecola and Lemieux (2015) aimed to determine salient predictors of self-efficacy in working with individuals with ASD using a convenience sample of 97 predominantly female and Caucasian social work graduate students from one southeastern U.S. university. Variables of interest included knowledge about ASD, attitudes toward working with persons with ASD,

interest in working with persons with ASD, methods of instruction in graduate-level courses regarding ASD, workshops attended focused on ASD, and contact with persons with ASD (i.e., interactions with persons with ASD in field, paid work, volunteer, personal settings). Bivariate correlations indicated moderate, positive, and significant associations between self-efficacy and knowledge, methods of instruction, and contact; and weak, positive, and significant associations between self-efficacy and workshops and interest. Using ordinary least squares (OLS) regression analyses, these researchers found that 18% of the variance in self-efficacy in working with persons with ASD was predicted by knowledge and contact alone. These findings suggest that knowledge and contact are important predictors of social work graduate students' self-efficacy for working with persons with ASD.

Corona et al. (2017) used a multivariate approach similar to Dinecola and Lemieux (2015) to determine correlates of self-efficacy in working with students with ASD among 80 school professionals across 10 schools in New York state. This analysis was part of a larger study that investigated the effectiveness of a three-month training program on ASD and evidence-based practices, which involved both didactic and experiential learning components. Schools went through a competitive application process which required the creation of an ASD team and the approval for participation from school- and district-level leadership. The researchers used a convenience sample of predominately female and graduate-level prepared school professionals, including special education teachers and social workers (Corona et al., 2017). Knowledge was tested using a 16-item, researcher-developed, multiple choice questionnaire, and training was measured using a 5-point Likert-type scale with responses ranging from "I have received no training" to "I have received extensive training" on one question regarding training on ASD and a second on training on Positive Behavior Supports

(PBS), an evidence-based practice for ASD (Corona et al., 2017). Self-efficacy was measured using the 30-item Autism Self-Efficacy Scale for Teachers (ASSET; Ruble, Toland, Birdwhistell, McGrew, & Usher, 2013). This was the first known study to use the ASSET with school professionals other than regular education teachers.

A pretest-posttest design was employed, and mean scores on both the knowledge and self-efficacy scales increased significantly from pretest to posttest (Corona et al., 2017). Additionally, multiple linear regression was used to determine predictors of self-efficacy in working with students with ASD using data from only the pretest ($N$=76). The findings showed that experience with students with ASD, knowledge about ASD, prior training on ASD, and prior training on PBS accounted for 43% of variance in school professionals' self-efficacy in working with students with ASD. Training emerged as a significant predictor of self-efficacy, while knowledge and experience alone did not (Corona et al., 2017). These findings highlight the importance of training for professionals working with persons with ASD that focuses on both basic characteristics of ASD and the use of evidence-based intervention strategies.

**Self-Efficacy as a Predictor of Students' Career Interests**

This literature review yielded only two studies that used a multivariate approach for explaining correlates of self-efficacy (e.g., knowledge, attitudes, training) among persons working in the field of ASDs (Corona et al., 2017; Dinecola & Lemieux, 2015). However, two additional studies examined self-efficacy as a predictor of social work students' career interests in working with populations that also traditionally generate low interest, namely older adults (Olson, 2011) and individuals with ID (Werner & Grayzman, 2011), and a third study examined self-efficacy as predictor of pre-service teachers' career interests in special education (Zhang et al., 2014). These studies are relevant to the current study and are reviewed here.

Olson (2011) surveyed 252 advanced-year MSW students to examine the influence of self-efficacy and gerontology-related field practica and course work on social work graduate students' interest in and attitudes toward working with older adults. Self-efficacy was assessed with a 15-item, researcher-developed scale that gathered information about students' confidence and perceptions of adequacy in working with older adults specifically (Olson, 2011). Strong interrelationships emerged among self-efficacy, attitudes, and interest; approximately 29% of the variance in students' interest in working with older adults was explained by field practica experience and self-efficacy, indicating the importance of contact and exposure in shaping students' career interests. Olson (2011) concluded that future research should identify predictors of self-efficacy, a more theoretically sound approach, in a variety of disciplines, not just gerontology.

Werner and Grayzman (2011) also used a multivariate approach to examine behavioral intentions among 422 undergraduate students in human service professions, including 138 social work majors. The researchers developed a survey informed by Theory of Planned Behavior to assess predictors of students' intentions to work with individuals with IDs after graduation, including attitudes, subjective norms, knowledge, prior contact, self-efficacy, and general attitudes toward persons with IDs. Respondents, overall, reported low levels of knowledge and self-efficacy. Behavioral intention, attitudes, subjective norms, knowledge, and contact were moderately and significantly associated with self-efficacy (Werner & Grayzman, 2011). Structural equation analyses were undertaken to test all paths in the model predicting intention to work in the field of IDs, and results showed that self-efficacy was not directly related to behavioral intention, but was mediated by students' attitudes. These findings highlight the importance of further examination regarding the relationship between attitudes and self-efficacy.

Werner and Grayzman (2011) concluded that future research should examine predictors of self-efficacy among service providers because low self-efficacy fosters distrust among clients with ID and their families.

In a study examining predictors of 213 pre-service teachers' intentions for entering the field of special education, researchers found that general teaching efficacy, as measured by 24-items from the Teaching Efficacy Scale (Tschannen-Moran and Hoy, 2001), was positively and significantly related to their self-efficacy for teaching students with disabilities specifically (Zhang et al., 2014), as measured by a 21-item researcher-developed measure with questions adapted from prior studies on teaching self-efficacy (Coladarci and Breton, 1997; Gibson & Dembo, 1986). Additionally, Zhang et al. (2014) found that pre-service teachers' self-efficacy for teaching was relatively high despite their lack of training and experience, and pre-service teachers' special education self-efficacy was lower than their general teaching self-efficacy. The researchers also found that students' work and personal experiences with persons with disabilities was not directly related to special education self-efficacy but indirectly impacted special education self-efficacy through their commitment to working with people with disabilities. Additionally, Zhang et al. (2014) found that special education self-efficacy indirectly influenced intention to pursue a special education job through outcome expectations (i.e., attitudes about working with persons with disabilities) and commitment. The findings from the latter study warrant further research on the relationships of self-efficacy for general professional practice and attitudes with self-efficacy for working with persons with disabilities, such as ASD.

**Self-Efficacy as a Predictor of FCC Practices**

Although there is a sizable knowledge base regarding barriers to providing FCC (e.g., Hodgetts et al., 2014; Lotze et al., 2010, MacKean et al., 2015; Shannon, 2004), little is known

about professionals' preparation for and use of FCC practices. Only one known empirical study has explored predictors of FCC practice. Christon and Myers (2015) examined predictors of FCC practices among a multidisciplinary sample of 709 professionals working with children with ASD across the U.S. Most of the participants was recruited using non-probability sampling methods, namely convenience and snowball sampling; and the remaining participants were recruited from online service provider listings using a stratified random sampling method (Christon & Myers, 2015). Providers from disciplines across the ASD service system participated in the study, including social workers (7.33%) and special education teachers (9.20%). Participants were primarily female and Caucasian with ages ranging from 23 to 73 years old and held Master's or doctoral degrees. All participants reported that they were currently providing services to children with ASD.

Independent variables included constructs related to the Theory of Planned Behavior: training in FCC; attitudes toward FCC; subjective norms for FCC, which refers to social pressures; and perceived behavioral control, which refers to a person's perceptions of their ability to control whether or not they engage in a behavior and includes self-efficacy, for FCC (Azjen, 1991; Azjen, 2002). Training in FCC was measured using one researcher-developed item that asked participants to rate the extent to which their graduate program focused on FCC principles (Christon & Myers, 2015). Attitudes, subjective norms, and perceived behavioral control were measured using a researcher-developed scale, Theory of Planned Behavior-Family Centered Care (TPB-FCC), with three subsscales respectively (Christon & Myers, 2015). The researchers reported adequate internal consistency for these subscales with this sample with Cronbach alphas ranging from .77 to .91. Content validity was established by piloting the scale with ASD experts. FCC practice behaviors were measured using the Measure of Processes of

Care-Service Provider (MPOC-SP; Woodside et al., 2001), which has four sub scales: (1) showing interpersonal sensitivity, (2) providing general information, (3) communicating specific information, and (4) treating people respectfully.

Using hierarchal multiple regression, the researchers found that TPB variables accounted for 25.5% of the variance in self-reported FCC practices. Attitudes and perceived behavioral control, which includes self-efficacy, emerged as significant predictors, even after controlling for discipline and covariates (e.g., years in practice, training emphasizing FCC). Years in practice also was positively associated with FCC practices. Medicine was the only discipline that emerged as a significant predictor, with the Medicine discipline negatively correlating with FCC practice behaviors, indicating that doctors and nurses reported using significantly fewer FCC practice behaviors than the average participant.

Christon and Myer (2015) suggested that future studies focus on exploring attitudes toward and self-efficacy for providing FCC to persons with ASD among samples with providers from only one or two disciplines. Christon and Myers (2015) reported that social workers were difficult to recruit and subsequently may not be adequately represented in this study.

### Knowledge, Attitudes, Contact, and Training

This subsection includes the review of 12 studies from the social work and education professional literature that provide additional descriptive context on potential correlates of self-efficacy for providing FCC to persons with ASD and their families (i.e., knowledge about ASD, attitudes toward working with persons with ASD, contact with persons with ASD, training in the areas of ASD and FCC, and self-efficacy for professional practice).

**Social Work**

Preece and Jordan (2007) surveyed a convenience sample of 27 primarily female social workers and social work assistants employed at two agencies in England with varying levels of work experience with individuals with ASD. The researchers administered Mavropoulou and Padeliadu's (2000) QOA to assess social workers' knowledge about ASD, and found that social workers held numerous misconceptions about ASD. For example, social workers reported mistaken beliefs about the etiology of ASD (i.e., social causes, poor relationships with mothers, and vaccines), as well as inaccurate information about age of onset, proper diagnostic procedures, and effective interventions for children with ASD (Preece & Jordan, 2007). However, Preece and Jordan (2007) found that participants were able to accurately describe some of the primary characteristics of persons with ASD (e.g., wanting a familiar environment, avoiding changes in routine, and having obsessions).

Using a convenience sample drawn from an Israeli university, Werner (2011) interviewed 42 female undergraduate students in various human service professions, including social work. Most students who participated in this qualitative study believed that working with individuals with ASDs would require a high level of commitment and that the work could be frustrating due to communication difficulties and the relatively modest gains observed in clients over time (Werner, 2011). Another theme that emerged was the problem of stigma, which respondents attributed to low levels of professional knowledge and lack of educational opportunities related to ASDs. As compared to respondents in other disciplines, social work students were more likely to believe that the benefits of working with individuals with ASDs were limited, but the experience provided opportunities for personal and professional development (Werner, 2011).

Dinecola (2012) conducted an exploratory, cross-sectional study to explore correlates of interest in working with individuals with ASD among social work graduate students. The researcher used a non-probability, convenience sampling method, and the sample included 97 primary female and Caucasian graduate social work students from one southeastern U.S. state. Variables of interest included knowledge about ASD, self-efficacy in working with persons with ASD, attitudes about working with persons with ASD, contact with persons with ASD, and training on ASD. These variables were measured using researcher-created and researcher-adapted scales that had moderate to good internal consistency with the sample used in this study (Cronbach's alphas ranging from .72 to .89).

Knowledge was measured using a researcher-developed, true-false-don't know format questionnaire with 30 items about the etiology, diagnosis of, characteristics of, and evidence based treatments for ASD adapted from Stone's (1987) Autism Knowledge Questionnaire and its adaptations (e.g., Mavropoulou & Padeliadu, 2000; Schwartz & Drager, 2008; Stuart, Swiezy, & Ashby, 2008; Williams, Schroeder, Carvalho, & Cervantes, 2011). Dinecola (2012) found that social work graduate students had low levels of knowledge about ASD, with the average participant answering only 48% of items on the true-false-don't know knowledge test correctly. The participants knew the most about diagnostic criteria and general characteristics of ASD and the least about evidence-based treatments for ASD. Attitudes toward working with individuals with ASD were assessed using an 11-item researcher-developed measure that was adapted from related, prior research on MSW students' career interests (Csaki & Belanger, 2002). The participants had favorable attitudes toward working with individuals with ASD. For example, participants believed that working with individuals with ASD provided opportunities to develop skills as a social worker and that the work was important to society. Contact in field, paid work,

volunteer, and personal settings was assessed. Most students reported interactions with persons with ASD in their personal lives, but not through field, paid work, or volunteer experiences.

**Education**

Using an adaptation of Stone's (1987) Autism Knowledge Survey (AKS), Helps et al. (1999) examined knowledge, attitudes, and training regarding ASD among 72 school professionals, including regular and special education teachers and paraprofessionals. Items comprising the AKS reflect beliefs rather than absolute facts; thus, the researchers also surveyed ASD experts and used their responses as an ideal comparison against participants' responses, in order to establish a more objective measure of knowledge. Despite the fact that most participants were working with students with ASD, few reported having had specialized training focused on ASD (Helps et al., 1999). Participants were most knowledgeable about the lifelong prognosis of ASD and classroom strategies for learners with ASD; however, respondents held misconceptions about the characteristics of ASD and differential diagnosis (Helps et al., 1999).

Mavropoulou and Padeliadu (2000) surveyed a convenience sample of 35 regular education and 29 special education teachers enrolled in a teacher training program in Greece. The researchers developed a 13-item survey that assessed knowledge of and attitudes toward ASD using multiple-choice and open-ended questions. Participants demonstrated the most knowledge about prevalence, characteristics, and differential diagnosis, but were unclear about the age of onset (Mavropoulou & Padeliadu, 2000). Although the majority of participants recognized brain dysfunction and genetics as the most probable cause of ASD, some erroneously reported parental negligence as a major etiological factor. Finally, participants were positive about integrating ASD learners with the general education population (Mavropoulou & Padeliadu, 2000).

In a descriptive, cross-sectional study, Williams et al. (2011) explored knowledge and perceived competence (i.e., self-efficacy) among 54 school professionals enrolled in various education graduate programs. All participants had either directly or indirectly worked with students with ASD. The researchers developed two scales: the 12-item Perceptions Survey, which measured self-efficacy, and the Knowledge Survey, which was made up of 15 open-ended questions about the definition, assessment, and treatment of ASDs. Participants reported average levels of self-efficacy, low levels of knowledge about assessment and diagnosis, and moderate levels of knowledge about characteristics and treatment. Williams et al. (2011) noted that, overall, participants were overly confident in their abilities relative to their knowledge, and they demonstrated low interest in participating in further training to increase their knowledge.

Using the 7-item Autism Attitude Scale for Teachers, Park, Chitiyo, & Choi (2010) surveyed 131 undergraduate education majors and found that participants reported positive attitudes towards students with ASD, especially with regard to inclusion of ASD learners in general education classes and teachers' influence on outcomes for students with ASD. These latter researchers also found that participants who reported some exposure to individuals with ASD had more favorable attitudes, suggesting a positive relationship between contact and attitudes. Park and Chitiyo (2011) found that teachers, like undergraduate education majors, also held positive attitudes toward students with ASD. In this latter study, participants who reported having attended workshops on ASD had more positive attitudes than those who did not attend workshops, indicating a link between respondents' training and attitudes (Park & Chitiyo, 2011).

Hughes, Combes, and Metha (2012) surveyed a convenience sample of 106 special education administrators in Texas via e-mail to examine knowledge of and training needs for ASD. The authors posited that special education administrators need to be knowledgeable about

ASD due to increasing numbers of diagnoses of the condition and subsequent litigation against school districts related to ASD (Zirkel, 2002). All participants held either a Master's or doctoral degree, and most participants reported having experience with teaching students with ASD. A 60-item, researcher-developed survey included questions about the school district (i.e., total enrollment, number of students with ASD, and legal disputes and resolutions), participants' professional background and training (i.e., training experiences and experience teaching students with ASD); knowledge of ASD, as measured with 24 true-false items adapted from Stone's (1987) AKS; knowledge of educational programming for students with ASD, as assessed by multiple choice items reflecting special considerations for ASD students mandated by the Texas Commission of Education; and professional development needs, as measured by items from Council on Exceptional Children's (CEC, 2008) knowledge domains. Content validity was established with a review undertaken by 7 ASD and special education experts. Hughes et al. (2012) found that special education administrators reported the greatest amount of knowledge about the general characteristics of ASD and the least about diagnostic criteria for ASD. Additionally, the special education administrators demonstrated low levels of knowledge about evidence-based practices for ASD; however, participants also acknowledged this area as a primary need for professional development opportunities (Hughes et al., 2012).

In a cross-sectional, descriptive study, Rakap, Baliki, Parlak-Rakap, and Kalkan (2016) surveyed 509 senior undergraduate students majoring in preschool, special and regular education, and counseling from 5 universities across Turkey to explore knowledge about ASD. The researchers adapted Mavropoulou and Padeliadu's (2002) Questionnaire on Autism (QOA) for use with college students and translated the questionnaire into Turkish. The questionnaire was piloted with students to confirm legibility and to establish test-retest reliability. Rakap et al.

(2016) found that a sizable proportion of students across all programs inaccurately endorsed lack of parental warmth and social issues as primary causes of ASD, with special education students being more likely to make this error than either general education or counseling students. Students reported the greatest amount of knowledge about general characteristics about ASD, such as the fact that ASD is more common in boys than girls. Most students across all teacher programs also held positive views about inclusion of students with ASD. Although generalizability to American students is inadvisable, this is the first known study to examine differences in knowledge of ASD among students from different disciplines.

Hauber, Mehta, and Combes (2015) examined correlates of knowledge of ASD among a convenience sample of 36 novice alternatively credentialed special education teachers in Texas. The authors sought to determine if alternative certification programs were as effective as traditional teacher preparation programs for preparing special education teachers to address the complex needs of students with ASD. Participants were primarily female and Caucaisan. Participants reported varying levels of experience, training, and coursework on ASD; however, over half had some experience with persons with ASD. Hauber et al. (2015) used a 50-item, modified version of the Knowledge about Childhood Autism among Health Workers (KCAHW; Bakare, Ebigo, Agomoh, & Menkiti, 2008) to measure knowledge about ASD, which has been used with international samples of healthcare professionals in prior studies. To determine content validity of the modified instrument, 9 ASD experts were consulted. Information regarding education and professional background and demographics were also collected. Hauber et al. (2015) found that participants had less than proficient knowledge about ASD, with the average participant answering only 63.5% of questions correctly on the KCAHW. A multiple regression model that included measures of age, number of students with ASD taught, number of credit

hours, professional development, and hours of self-directed learning showed that self-directed learning was the only statistically significant predictor of knowledge scores, indicating that participants' independent research about ASD was more effective at increasing knowledge than formal training received in certification programs (Hauber et al., 2015). These findings cannot be generalized to a broader population of professionals due to insufficient statistical power resulting from the extremely low sample size. Despite the limitations of this study, these preliminary findings suggest a need for more rigorous research with larger and more representative samples to examine knowledge and training about ASD among human service and education professionals, including the potential role of self-directed learning.

## Limitations of Empirical Studies

The major limitations of the studies described in this literature review include reliance on cross-sectional designs, threats to generalizability, and measurement issues.

### Research Design

All of the reviewed empirical studies were cross-sectional, meaning that data were collected at only one point in time (Rubin & Babbie, 2010). Thus, the reviewed studies have not examined changes in the participants' self-efficacy, knowledge, attitudes, and other variables, or how these relevant variables translate into interest, commitment, or intention to work with persons with ASD and their families; and ultimately, actual practice behaviors and career choices.

### Sampling

In the reviewed studies, generalizability was limited due to the use of non-probability sampling methods (Rubin & Babbie, 2010). Random sampling increases the power of research designs; however, despite its limitations, convenience sampling is often used in social services

research due to the impracticality of random sampling (Rubin & Babbie, 2010). All of the reviewed studies examining knowledge, attitudes, contact, training, and self-efficacy utilized convenience samples except for one (i.e., Christon & Myers, 2015).

The use of non-probability sampling methods compromises the representativeness of a study's sample. For example, the reviewed studies used disproportionately female samples (e.g., Werner, 2011). While females are representative of students in these fields, the findings from these studies may not be generalizable to male students in these same professions.

Several of the studies were conducted in countries other than the United States, including England (Helps et al., 1999; Preece & Jordan, 2007), Israel (Werner, 2011; Werner & Grayzman, 2011), Turkey (Rakap et al., 2016), and Greece (Mavropoulou & Padeliadu, 2000). Thus, there is a relatively small body of literature that can be generalized to social work students in the United States due to the differences in university systems and teacher and social work education in other countries. Another limitation regarding representativeness was that participants in many studies were sampled from only one institution or setting (e.g., Dinecola, 2012; Dinecola & Lemieux, 2015; Werner, 2011).

Sample size can also limit generalizability (Rubin & Babbie, 2010). Only four studies included over 100 participants (i.e., Christon & Myers, 2015; Hughes et al., 2011; Rakap et al., 2016; Werner & Grayzman, 2011), and several studies reported sample sizes with fewer than 50 participants (viz., Hauber et al., 2015; Preece & Jordan, 2007; Werner, 2011).

The only reviewed study regarding FCC practices (Christon & Myers, 2015) utilized two sampling methods: convenience sampling and stratified random sampling. Type of sample emerged as a significant predictor of FCC behaviors in a hierarchal regression, suggesting that participants recruited using different sampling methods were inherently different. Thus, there is a

small chance that findings from this study were influenced by sampling error rather than true differences across disciplines (Christon & Meyers, 2015).

**Measurement**

The use of self-report, researcher-developed, and untested measures were prevalent issues among the reviewed studies. Measures assessing knowledge (Corona et al., 2017; Dinecola, 2012; Dinecola & Lemieux, 2015; Hauber et al., 2015; Hughes et al., 2012, Mavropoulou & Padeliadu, 2000, Rakap et al., 2016; Williams et al., 2011), attitudes (Werner & Grayzman, 2011), contact (Dinecola, 2012; Dinecola & Lemeieux, 2015), training (Corona et al., 2017; Dinecola, 2012; Dinecola & Lemieux, 2015) and self-efficacy (Williams et al., 2011; Zhang et al., 2014) were researcher developed and not tested for reliability and validity. Only Cronbach's alphas, to measure internal consistency, were reported for some researcher-developed measures assessing attitudes and self-efficacy (Christon & Myers, 2015; Dinecola, 2012; Dinecola & Lemieux, 2015).

Measurement issues present a problem for synthesizing findings regarding students and professionals' knowledge about ASD. Harrison, Slane, Hoang, & Campbell (2017) conducted a thorough, international review of ASD measures and found that over 40 instruments exist. For each new study on knowledge about ASD, researchers tend to create a new measure rather than use an instrument from prior research. Additionally, few instruments have been tested empirically for sound psychometric properties. Reliability and validity have been established for Stone's (1987) Autism Knowledge Scale (AKS; Campbell, Reichle, & Van Bourgondien, 1996), but the measure collects only self-report data, which can result in measurement error due to issues such as recall and social desirability (Rubin & Babbie, 2010). A number of researchers have adapted Stone's (1987) Autism Knowledge Survey to include more objective measures of

knowledge, including true-false and multiple-choice questions (e.g., Dinecola, 2012; Helps et al., 1999; Hughes et al., 2012; Preece & Jordan, 2007); however, the reliability and validity of these adapted versions have not been empirically established. Harrison et al. (2017) suggest that future research build on the existing knowledge base by using an existing measure and at least reporting internal consistency coefficients for the study sample if not testing reliability and validity even further. Thus, the current study used Dinecola's (2012) instrument to measure knowledge among a larger and more diverse sample, and content validity will be established by a review of a panel of ASD experts.

Corona et al. (2017) also identified measurement issues in their study, including the reliance on self-report data and the subjective nature of their training measure. These latter authors also recommended that future studies collect more specific and objective data about training, such as topics covered, duration, and training methods used. The current study used data on five different types of training related to ASD and FCC.

In sum, the reviewed studies examining knowledge, attitudes, and other variables used cross-sectional designs and small, predominately female, convenience samples. Generalizability to U.S. students and professionals is further limited due to the use of nonprobability sampling methods and the use of samples from institutions in other countries. Measurement issues, such as the use of self-report data and untested measures, further compromise the rigor of the survey research undertaken with students.

## Summary and Implications of the Literature Review

A thorough review of theory and relevant empirical literature suggests the exploration of the following variables as possible correlates of self-efficacy for providing FCC to persons with ASD: knowledge about ASD, attitudes toward working with persons with ASD, contact with

persons with ASD, training in areas of ASD and FCC, and self-efficacy for engaging in professional practice.

**Self-efficacy for Providing FCC to Persons with ASD and their Families**

The review of the literature yielded no studies examining graduate social work and special education students' self-efficacy for providing FCC to persons with ASD and their families, and only three quantitative studies have examined self-efficacy for generally working with ASD among social work students (Dinecola & Lemieux, 2015) and special education professionals (Corona et al., 2017; Ruble et al., 2011). Researchers found that social work students and special educators generally reported low (Werner and Grayzman, 2011) to moderate (Corona et al., 2017; Dinecola & Lemieux, 2015) levels of self-efficacy for working with persons with ASD. These latter researchers' findings also indicated the importance of knowledge, contact, and training as predictors of self-efficacy for working with persons with ASD. Findings from studies on social work students' interest in other populations suggest that contact, attitudes, knowledge, and general self-efficacy for professional practice should be included as independent variables in multivariate models predicting self-efficacy (Olson, 2011; Werner & Grayzman, 2011; Zhang et al., 2014).

Empirical studies utilizing multivariate methods to explore self-efficacy among professionals and students in the social work and education professions are sparse. More research is needed using larger and more representative samples that include students and professionals from more than one discipline to further examine these predictive models for self-efficacy for working with persons with ASD. Research on self-efficacy for providing FCC to persons with ASD, specifically, is warranted, because social cognitive theories posit that self-efficacy should

be linked to a specific behavior or task (Bandura, 1997). Also, no existing studies have focused on graduate students' self-efficacy for providing FCC.

**Knowledge about ASD**

Researchers have shown that both social work (Dinecola & Lemieux, 2015; Preece & Jordan, 2007) and education (Hauber et al., 2015) professionals and students generally have low levels of knowledge and hold misconceptions about ASD. For example, Dinecola and Lemieux (2015) found that the average graduate social work student who participated in their study answered only 48% of questions correctly on an ASD knowledge test, and Hauber et al. (2015) found similar results with a sample of alternatively-credentialed special education teachers, who scored an average of 63% on a similar measure. In terms of misconceptions, undergraduate education students (Rakap et al., 2016), regular and special education teachers (Mavropoulou & Padeliadu, 2000), and social workers (Preece & Jordan, 2007) have endorsed lack of parental warmth as a primary etiological factor for ASD. Parental nurturing, especially from mothers, was once considered a possible cause of ASD; however, it has since been refuted by the scientific community as untrue. If education and social work students and professionals still have this misconception, it could interfere with their ability to practice FCC effectively.

**Attitudes about Working with Persons with ASD**

Research on attitudes toward working with individuals with ASD has shown that social work and special education students and professionals generally have positive attitudes toward persons with ASD, especially regarding the mainstreaming of students with ASD into general education settings (Mavropoulou & Padeliadu, 2000; Park & Chitiyo, 2011; Park et al., 2010: Preece & Jordan, 2007; Rakap et al., 2016). Although social work students reported that working with persons with ASD may offer opportunities for personal and professional growth (Dinecola,

2012; Werner, 2011), they also reported negative attitudes toward working with persons with ASD, including frustrations with modest improvements despite intervention and communication difficulties of this population (Werner, 2011). Social work students also had more negative views about how their profession could help persons with ASD (Werner & Grayzman, 2011),whereas special education students held positive views regarding the influence of teachers on outcomes for students with ASD (Park et al., 2010). Future research is warranted to determine whether these findings hold true in larger and more representative samples and if these attitudes and attitudinal differences between disciplines are also reflected in graduate social work and special education students' self-efficacy for providing FCC to persons with ASD and their families.

**Contact with Persons with ASD**

Several reviewed studies showed a link between self-efficacy and contact. Dinecola and Lemieux (2015) found that social work students reported having interactions with persons with ASD in their personal lives but fewer experiences in field, paid work, and volunteer experiences. These latter authors also found that self-efficacy for working with persons was positively and moderately associated with the number of settings in which they had interacted with persons with ASD (i.e., contact; Dinecola & Lemieux, 2015).

Similarly, Corona et al. (2017) found that school professionals' self-efficacy for working with persons with ASD was related to their previous experience working with students with ASD. Werner and Grayzman (2011) found that contact and self-efficacy were related in a study of social work and human service undergraduate students' intentions for working with individuals with persons with intellectual disabilities.

Other researchers found that pre-service teachers' previous experience with persons with disabilities indirectly influenced self-efficacy for working with students with disabilities through

their commitment to working with this population (Zhang et al., 2014). The findings from these studies suggest that contact, especially through personal and paid work experiences, may contribute to the development of social work and special education students' self-efficacy for providing FCC to persons with ASD and their families.

**Training in the Areas of ASD and FCC**

Two studies show a connection between training and self-efficacy (Corona et al., 2017; Olson, 2011). In a study of self-efficacy for working with students with ASD among school professionals, researchers found that training on ASD and PBS were both significant predictors of self-efficacy (Corona et al., 2017). This latter study supports future research exploring training on ASD etiology, symptoms, and diagnosis; and training on evidence-based practices, such as PBS and FCC, as predictors of self-efficacy for working with persons with ASD. In a study exploring social work students' interest in gerontology, Olson (2011) found that gerontology-related coursework was a predictor of self-efficacy.

Corona et al.'s (2017) finding that training was a significant predictor of self-efficacy for working with persons with ASD among school professionals deviated from Dinecola and Lemieux's (2015) prior finding that knowledge and contact predicted self-efficacy for working with persons with ASD among social work graduate students. Considering these conflicting findings, further research is warranted comparing self-efficacy of different professional groups. Corona et al.'s (2017) sample was comprised primarily of regular education teachers, although special education teachers (18%) and school social workers (5%) were also represented. Future studies should recruit samples with larger proportions of special education teachers and social workers to better understand self-efficacy among these professionals.

Although findings from Hauber et al. (2015) are not generalizable due to low sample size and statistical power, this study suggests that self-directed learning may be related to knowledge, even more so than formal training (Hauber et al. 2015). Future research investigating the role of self-directed learning in knowledge and self-efficacy development are warranted.

Christon & Myers (2015) latter researchers found that FCC-related training was positively related to perceived behavioral control (i.e., self-efficacy) and FCC practices; however, in a hierarchal regression model, FCC-related training did not emerge as a significant predictor for FCC practices. FCC-related training was measured with one item that asked professionals to rate the extent to which their graduate program focused on FCC. No psychometric properties were tested. More sophisticated measures of FCC-related training with adequate reliability and validity testing are warranted.

**Self-Efficacy for Professional Practice**

No studies have examined self-efficacy for professional practice as a predictor for graduate students' self-efficacy for providing FCC to persons with ASD and their families, specifically; however, one study of pre-service teachers has shown that general teaching self-efficacy is positively related to self-efficacy for teaching students with disabilities. This study suggests that self-efficacy for general professional practice may predict self-efficacy for providing FCC to persons with ASD and their families.

## Concluding Remarks

Due to the rising rates of diagnoses of ASD (CDC, 2018) and the empirical, bidirectional link between child symptoms and family stress (e.g., Woodman et al., 2015), it is critical that novice human service professionals are prepared to work with persons with ASD using best practices, such as FCC (Wells, 2011). The purpose of the current study was to examine

predictors of graduate social work and special education students' self-efficacy for providing FCC to individuals with ASD and their families. SCCT and relevant empirical studies suggest that knowledge about ASD, attitudes toward working with persons with ASD, contact with persons with ASD, training in the areas of ASD and FCC, and general self-efficacy for professional practice are important variables to explore as possible predictors of students' self-efficacy.

The current knowledge in the area of FCC indicates that social workers may be better equipped to provide FCC (Iannuzzi et al., 2015; Laws et al., 2010), although they are not frequently working with persons with ASD (Arrington & Whitaker, 2008); and that special educators have a more defined and active role in the treatment of persons with ASD, but report being engaged in low levels of FCC in their work with this population (Christon & Myers, 2015). To understand these issues better, the current study also aimed to determine differences between social work and special education students on key variables.

Although FCC has been established as a best practice in the area of early intervention for ASD, recent research has begun to draw attention to the importance of family throughout the lifespan, especially during the transition to adulthood, for persons with ASD (Clay & Parish, 2016; Gabovitch & Curtin, 2009; Smith et al. 2012). Because this focus on FCC in emerging adulthood is relatively new, students and professionals are likely not as knowledgeable and confident about working with emerging adults with ASD and their families. The current study empirically examined this assumption by comparing graduate social work and special education students' self-efficacy for working with young children with ASD versus emerging adults with ASD.

# CHAPTER 3. CONCEPTUAL FRAMEWORK

This current cross-sectional, descriptive study involved surveying graduate social work and special education students to determine empirically relevant predictors of their self-efficacy for providing FCC to individuals with ASD in their professional practice. Variables of interest, which were gleaned from relevant theories and empirical studies, included knowledge about ASD, attitudes toward working with persons with ASD, training in the areas of ASD and FCC, and self-efficacy for engaging in professional practice. Differences between social work and special education students on these latter variables were assessed. Additionally, the current study examined differences between participants' self-efficacy in working with emerging adults with ASD versus young children with ASD and their families. This chapter delineates the research questions and defines key terms related to the current study.

## Research Questions

1. What are the demographic and educational characteristics of graduate social work and special education students?
2. What is the level of knowledge about ASD among graduate social work and special education students? What specific ASD-related topics do graduate social work and special education students know the most or least about?
3. What are the attitudes of graduate social work and special education students toward working with persons with ASD?
4. What types of contact with persons with ASD and their families do graduate social work and special education students report?
5. In what types of training in the areas of ASD and FCC do graduate social work and special education students report participating?

6. What is the level of self-efficacy reported by graduate social work and special education students for engaging in professional practice?
7. What is the level of self-efficacy reported by graduate social work and special education students for providing FCC to persons with ASD and their families?
8. Are there differences in graduate students' levels of self-efficacy for providing FCC to emerging adults with ASD and their families and for providing FCC to young children with ASD and their families?
9. Do differences exist between social work and special education students on demographics educational background characteristics, knowledge about ASD, attitudes toward working with persons with ASD, contact with persons with ASD, training in the areas of ASD and FCC, self-efficacy for engaging in professional practice, and self-efficacy for providing FCC to persons with ASD and their families?
10. What interrelationships exist among demographics, educational background characteristics, knowledge about ASD, attitudes toward working with persons with ASD, contact with persons with ASD, training in the areas of ASD and FCC, self-efficacy for engaging in professional practice, and self-efficacy for providing FCC to persons with ASD and their families?
11. To what extent do significant bivariate correlates of self-efficacy for providing FCC predict graduate students' self-efficacy for providing FCC to persons with ASD and their families?

## Key Terms

This section defines key terms used in the current study that examined potentially explanatory predictors of graduate students' self-efficacy for providing FCC to persons with

ASD and their families. The instrumentation for measuring key concepts is described in the Methodology section.

**Knowledge of ASD**

Preece and Jordan (2007) defined knowledge as "understanding." The current study defined knowledge about ASD as demonstrated understanding of its etiology, core symptoms, characteristics, and relevant treatments. In the current study, knowledge about ASD was examined as a potential predictor of self-efficacy for providing FCC to persons with ASD and their families.

**Attitudes toward Working with Individuals with ASD**

The current study used Eagly and Chaiken's (1993) definition of attitude, which describes a person's predisposition to evaluate something favorably or unfavorably. The current study examined graduate students' attitudes toward working with individuals with ASD are explored among graduate social work and special education students in this study. Students' attitudes were examined as a potential predictor of self-efficacy for providing FCC to persons with ASD and their families.

**Contact with Individuals with ASD**

In the current study, contact referred to the participants' specific interactions with individuals with ASD. Contact included previous and current interactions in field (e.g., internship, student teaching), paid work, volunteer, and personal settings. Contact was assessed as a potential predictor of self-efficacy for providing FCC to persons with ASD and their families.

### Training in the Areas of ASD and FCC

Training included formal coursework that addressed ASD in students' graduate programs of study, attendance at professional workshops that focused on ASD, methods and duration of self-directed learning in the area of ASD, and FCC-related training. Students reported the methods of instruction that were used to deliver information about ASD in formal coursework. Participants were also asked to report the number of professional workshops they attended that focused primarily on ASD. Self-directed learning refers to activities in which the student has engaged in, independently and separately from the requirements of his or her graduate program, to seek information about the etiology, characteristics, and treatments of ASD. Two variables were used to assess this construct: methods and duration. FCC-related training refers to the extent to which students reported that their graduate coursework provided specific information about the 10 principles of FCC (NCFC, 1989). Training was examined as a potential predictor of self-efficacy for providing FCC to persons with ASD and their families.

### Self-Efficacy for Engaging in Professional Practice

In general, self-efficacy refers to "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391). In the current study, self-efficacy for engaging in professional practice is defined as a student's perception of his or her abilities to engage in generalist social work or special education practice, depending on the student's discipline of study. Self-efficacy for engaging in professional practice was explored as a potential predictor of self-efficacy for providing FCC to persons with ASD and their families.

**Self-Efficacy for Providing FCC to Persons with ASD and their Families**

Self-efficacy for providing FCC to persons with ASD and their families is the dependent variable in the current study. It is defined as a graduate student's perception of his or her abilities to provide FCC to persons with ASD and their families. Graduate students' efficacy for providing FCC to persons with ASD and their families was assessed at two developmental levels: young childhood and emerging adulthood. Young childhood referred to children from birth to age 8 (Irwin et al., 2007), and emerging adulthood included persons ages 18 through 26 (Taylor, 2009).

# CHAPTER 4. METHODOLOGY

This chapter describes the methodology and procedures used in the current study. Sampling issues and the protection of human subjects are discussed. Also, this section outlines the research design and describes issues regarding appropriateness of the design for answering the research questions. The section also discusses measurement, instrumentation, and issues around reliability and validity. The section concludes with an explanation of the proposed data analytic techniques.

## Sample and Procedures

The current study examined self-efficacy for providing FCC to persons with ASD and their families among 168 graduate special education and social work students. The sample was obtained using non-probability, convenience sampling methods. The researcher sent emails to the program directors of two Master of Social Work (MSW) and nine special education programs at nine Louisiana universities requesting approval to invite their students to participate in the study. Undergraduate and doctoral students were not recruited because the master's degree is considered the terminal degree for professional practice in each of these disciplines. Among the 10 programs contacted, permission was obtained from one MSW and three special education program directors at four universities (Louisiana State University, Nicholls State University, Southeastern Louisiana University, and Northwestern State University of Louisiana).

The researcher used both paper and electronic formats to administer the survey instrument. Both formats allowed students to remain anonymous as names and other identifying information were not collected. For graduate social work students, surveys in paper format were administered by the researcher during all sections of on-campus classes required for the MSW degree. The MSW program director allowed the researcher to request permission from professors

who teach required courses for the program to administer the paper survey in their classes. Three professors were contacted, and all agreed to have the researcher administer the survey in their classes. A total of 120 graduate social students were available to take the survey. For graduate special education students, paper surveys were administered to students at one university, and the electronic version was administered to students at two universities. One special education program director forwarded information about the study to professors that taught graduate students and instructed them to contact the researcher if they were willing to have the survey administered during their classes. One professor inquired about the study and allowed the researcher to administer the survey to his class of four students. All four students completed the survey. A total of 104 surveys was collected from special education ($n$=4) and social work ($n$=100) students, representing a response rate of 83.9% for the paper format.

The special education program directors at two universities provided a list of student names and email addresses to the researcher, who directly invited students to participate in the study. The researcher sent emails to 177 special education students with information about the study and a link to the survey. Two additional reminder emails were sent: one week after the initial email, and one month after the initial email was sent. Among 177 students, 64 completed the online survey, resulting in a 38.4% response rate for participants who completed the electronic version. The overall response rate for both electronic and paper formats was 55.8%.

## Protection of Human Subjects

The procedures for the collection of data in the study allowed voluntary participants to remain anonymous. The substantive focus of the proposed study pertained to students' education and their preparedness for professional practice in the field of ASD. Data were collected with a

self-report survey instrument. Due to the anonymity and focus of the study, the current research was exempted from IRB oversight. (See Appendix A for the IRB approval letter.)

As an incentive for participation, students who completed the survey, in either paper or electronic format, were eligible to enter a raffle for one of 25 $10.00 Amazon.com gift cards. Raffle tickets were attached to the paper survey, which enabled respondents to provide their contact information and return the ticket separately from the completed survey instrument, thereby ensuring anonymity. Online survey participants were instructed to click on a link after completing the survey, which led them to a separate website with a form for them to provide their contact information to enter the raffle. The latter online method also allowed participants to anonymously participate in the study.

Information about the study was provided in the first section of the survey instrument. Students were informed that their participation was voluntary, there were no risks to the participants, and there was no penalty for not participating in the study. Prospective participants also were advised that if the results were published, no identifying information would be revealed. The written information about the study also included a description of the aforementioned incentive as a potential benefit for participating in the research. When the paper survey was administered in students' classes, the researcher verbally provided information about the study and answered students' questions. Students were advised that their informed consent to participate in the research was implied by completing and turning in the survey.

## Research Design

The current study utilized a cross-sectional, correlational design. The survey instrument was administered only once to participants. After data were collected, entered, cleaned, and summarized, multivariate statistical analyses were conducted to simultaneously examine three or

more variables. Major threats to the generalizability of the findings of this study include the representativeness of the sample and setting (Rubin & Babbie, 2010).

## Measurement and Instrumentation

This current study sought to identify correlates of self-efficacy for providing FCC to persons with ASD and their families. Potential predictors included demographics, educational background characteristics, knowledge about ASD, attitudes toward working with persons with ASD, contact with persons with ASD, ASD-related training, self-directed learning in the area of ASD, FCC-related training, and self-efficacy for engaging in professional practice. A 97-item survey, consisting of 7 major sections and including measures developed by the researcher and measures adapted from questionnaires used in prior studies, was used to measure the key constructs. (See Appendices B and C for full survey instruments.) Questions about knowledge, attitudes, contact, and training were used in two previous studies, and the face validity of these latter measures was deemed adequate (Dinecola, 2012; Dinecola & Lemieux, 2015).

### Content Validation Procedures

Before piloting the survey with a comparable sample of students, the knowledge and self-efficacy sections of the survey were e-mailed to 11 ASD experts, including physicians, psychologists, special educators, social workers, and researchers, for feedback about the content and face validity of the items and case studies. The self-efficacy section was composed of two case studies: one involving a young child with ASD and another involving an emerging adult with ASD.

Five experts (response rate=45%) responded with recommendations for the removal and re-wording of several items on the knowledge scale. These experts also recommended revisions to the self-efficacy case studies to better illustrate family issues that are encountered by ASD

professionals. For example, one expert suggested adding more details about the social struggles of the emerging adult with ASD because many parental concerns center around parents' desire for their son or daughter to have a friend.

### Procedures for Piloting the Questionnaire

The researcher piloted the survey with 85 child and family studies undergraduate students. The researcher obtained permission from two professors to attend two different undergraduate child and family studies classes to distribute the survey and provide instructions for the pilot to their students. Students were asked to complete the survey and to make notes on the clarity of items. Students were also asked to provide the times they started and finished the survey, which allowed the research to compute the average time to take the survey.

The average time to completed the survey was 24 minutes. The researcher incorporated the feedback from students regarding typing errors and confusing wording of items.

## Operationalization of Key Variables

This subsection operationalizes the terms introduced in the Conceptual Framework and describes each section of the questionnaire, including the development of associated measures. Internal consistency reliability of researcher-developed measures and the levels of measurement for variables are discussed.

### Demographic and Educational Background Characteristics

Participants were asked 8 optional questions about their demographics and educational background characteristics. Demographics included age, gender, and race; whereas educational background characteristics included discipline of study, number of credit hours in which the participant was enrolled in and had completed for their graduate program, participation in

specialized concentration and certificate programs, and the name of the university where the participant was enrolled.

**Knowledge about ASD**

Participants' knowledge about ASD was measured with a 15-item researcher-developed test that assessed understanding of a myriad of aspects of ASD, including symptoms, etiology, characteristics, prognosis, co-occurring conditions, and treatments. Test questions were developed based on Stone's (1987) Autism Knowledge Scale (AKS) and recent adaptations to the AKS reported in the professional literature (Mavropoulou & Padeliadu, 2000; Schwartz & Drager, 2008; Stuart et al., 2008; Williams et al., 2011). Participants were asked to answer each question with one of three responses: true, false, don't know. Examples of true items from this measure include: "ASD is more frequently diagnosed in males than in females" and "ASD can be diagnosed as early as 18 months." Two examples of false items from this measure are: "ASD can be cured with proper treatment" and "children must exhibit self-injurious behavior to receive a diagnosis of ASD." Correct answers were coded as 1, and incorrect and "don't know" responses were coded as 0. Correct responses were summed for a total ranging from 0 to 15, with higher scores indicating higher levels of knowledge.

**Attitudes toward Working with Persons with ASD**

Students' attitudes toward working with persons with ASD were assessed with a researcher-developed 11-item measure that was adapted from instruments used by other researchers to assess social work students' attitudes toward working with other client populations (Csikai & Belanger, 2002; Cummings, Adler, & DeCoster, 2005). Participants were asked to rank their level of agreement with each item using a 6-point Likert scale (1=strongly disagree, 6=strongly disagree). Examples of items from this scale include: "working with individuals with

ASD would be too demanding" and "working with individuals with ASD is important to society." Four negatively worded items were reverse coded. The items were summed to compute a scale score ranging from 11 to 66, with higher scores indicating more positive attitudes toward working with individuals with ASD. Consistent with the alpha of .74 reported by Dinecola and Lemieux (2015), the current study obtained a Cronbach's alpha of .74, indicating adequate internal consistency of the scale with the current sample.

**Contact with Persons with ASD**

Participants' contact with persons with ASD was measured with 4 questions asking students to indicate whether they previously interacted or currently interact with individuals with ASD in personal, volunteer, field (i.e., internship, student teaching, practicum), and work settings. These 4 items were developed by the researcher and adapted from previous research assessing social work students' contact with persons with schizophrenia (Eack & Newhill, 2008) and older adults (Cummings & Galambos, 2002; Cummings et al., 2005). This measure was also used by Dinecola and Lemieux (2015). Similar to these latter studies, participants in the current study were asked to indicate whether they had contact with persons with ASD in each of the four settings with three response options: yes (1), no (0), and don't know (0). The total score for the measure assessing participants' contact was obtained by summing the 4 responses (Range=0-4), with higher scores indicating greater frequency in contact with persons with ASD.

**Training in the Areas of ASD and FCC**

Participants' training was defined as formal coursework, professional workshops, and methods and duration of self-directed learning in the area of ASD; and FCC-related training.

**Formal coursework.** Formal coursework was assessed with one item that measured the number and type of methods of instruction about ASD received in graduate-level coursework.

The item consisted of a list of different methods of instruction adapted from relevant research undertaken with graduate social work students regarding curriculum content on developmental disabilities in a social work graduate program (Joyner, 2008). This measure was also used by Dinecola and Lemieux (2015). Using a checklist, participants were asked to indicate the specific ways in which they were provided information about ASD in their graduate-level social work and special education courses. Eight response options included: lecture presented by professor, presentation by classmates, group project, assigned readings, course assignments (other than group projects and assigned readings), guest speaker, use of media (e.g., video, audio, etc.), and other. When selecting the response option for other, participants were asked to specify the method of instruction utilized. Each checked item was coded as 1, whereas unchecked items were coded as 0. Scores for the methods of instruction items were summed. Total scores ranged from 0 to 8, with higher scores indicating greater frequency of methods of instruction about ASD in formal coursework.

**Professional workshops.** The second item assessing training asked the question, "How many workshops outside of the classroom have you attended that focused exclusively on ASD?" This item is adapted from relevant research examining professionals' training in the area of ASD (Dinecola & Lemeiux, 2015; Schwartz & Drager, 2008). Participants were asked to provide a numerical response to this question. Number of workshops in the area of ASD was dichotomized prior to analyses and coded as 0 (no workshops attended) or 1 (at least one workshop attended).

**Methods of self-directed learning.** Using a checklist, participants indicated the specific ways in which they engaged in self-directed learning in the area of ASD. Seven response options included: searching for resources and information on websites, searching for resources and information at a physical library, reading magazine and news articles, reading peer-reviewed

journal articles, watching webinars and videos online, watching documentaries, and other. When selecting the response option for other, participants were asked to specify the method of instruction utilized. Each checked item was coded as 1, whereas unchecked items were coded as 0. Scores for the methods of self-directed research in ASD item were summed. Total scores ranged from 0 to 7, with higher scores indicating greater frequency of different methods of self-directed research related to ASD.

**Duration of self-directed learning.** The second question asked participants to provide an estimated number of hours they have engaged in self-directed learning by writing a numerical response. Duration of self-directed learning was dichotomized prior to analyses. Cases in which participants indicated engaging in 5 or more hours of self-directed learning were coded as 1 (substantial self-directed learning), and cases with less than 5 hours were coded as 0 (minimal self-directed learning)

**FCC-related training.** FCC-related training was assessed using a 12-item researcher-developed measure that asked participants to choose a response that corresponds to the extent to which they have received information about the FCC principles in their current graduate program using a 6-point Likert-type scale. Response options ranged from not at all (1) to very much (6). The items were created using the 10 principles of FCC outlined by NCFCC (1989). Scores ranged from 12 to 72, with higher scores indicating greater extent of information about FCC principles received from the graduate program. This scale had excellent internal consistency as indicated by a Cronbach's alpha of .94.

**Self-Efficacy for Engaging in Professional Practice**

Participants completed one of two separate measures to assess self-efficacy for engaging in professional practice, depending on their discipline of study. Graduate social work students

were asked to rate their confidence in their ability to complete 14 tasks related to general social work practice with individuals and families, which were gleaned from the *2015 Educational Policy and Accreditation Standards for Baccalaureate and Master's Social Work Programs* set by the Council on Social Work Education (CSWE), on a 6-point Likert scale ranging from 1, meaning not confident at all, to 6, meaning very confident. The self-efficacy scale for special education professional practice used the same question stem and response choices as the social work self-efficacy measure; however, it included 12 tasks related to general special education practice with students and their families, which were developed based on the CEC's *Advanced Standards for Educators* (CEC, 2015).

Scores ranged from 14 to 84 for the social work scale and 12 to 72 for the special education scale, with higher scores indicating higher levels of self-efficacy for professional practice with individuals and families. Both scales were found to have excellent internal consistency, with Cronbach's alphas of .91 for the social work scale and .90 for the special education scale. Self-efficacy for discipline-specific professional practice was dichotomized prior to analyses. Cases with the top 50% of scores on the measures of self-efficacy for professional practice were coded as 1 (more confident), and cases with the lowest 50% of scores on measures of self-efficacy for professional practice were coded as 0 (less confident).

**Self-efficacy for Providing FCC to Persons with ASD and their Families**

Self-efficacy for providing FCC to persons with ASD and their families was measured using a 30-item researcher-developed questionnaire in which participants were asked to read two case vignettes and rate their perceptions of their self-efficacy for engaging in different FCC practice behaviors related to each of the scenarios. The vignettes illustrated cases concerning a nineteen-year-old emerging adult with ASD and a 5-year-old child with ASD and their families

and include common child and family issues related to the emerging adulthood and young childhood developmental periods, respectively. The emerging adulthood vignette was developed by the researcher based on her practice experience with this population. The young child example was adapted by the researcher from a published case study used for training service providers about parent-implemented interventions in the field of ASD (Hendricks, 2009). The validity of the vignettes was enhanced by employing suggestions from experts in the field based on family-related issues from their practice.

FCC practice behaviors were adapted from the Measures of Processes of Care for Service Providers (MPOC-SP; Woodside et al., 1998; Woodside et al., 2001), which measures the extent to which service providers engage in FCC. Examples of targeted behaviors included: "discuss expectations for child with other service providers, to ensure consistency in thought and action" and "treat parents as equals rather than just a parent of a client or student." For each of the practice behaviors, participants were asked to rate their level of confidence with the question, "How confident do I feel in my ability to…?," using a 6-point scale ranging from not confident at all (1) to very confident (6). The self-efficacy measure includes 15 items for each vignette for a total of 30 items, with total self-efficacy scale scores ranging from 30 to 180. Higher scores indicate higher levels of self-efficacy. The Cronbach's alpha for this scale was 0.96, which indicates excellent internal consistency. Items for each vignette were also individually summed to create 2 self-efficacy sub-measures, thereby enabling the researcher to compare students' self-efficacy for providing FCC to emerging adults with ASD with self-efficacy for providing FCC to young children with ASD. These subscales also had excellent internal consistency, with a Cronbach's alpha of .90 for the emerging adulthood subscale and .95 for the young childhood subscale.

## Data Analysis

Data were entered, cleaned, and then analyzed in SPSS® 23. Data were pre-screened to assess for accuracy and missing cases. Univariate, bivariate, and multivariate analyses were conducted to answer the research questions.

### Data Screening

To assess the accuracy of the data, frequency distributions and basic descriptive statistics (i.e., mean, standard deviation, mode, range) were computed for each variable. The ranges were examined to determine whether values existed in the data that were outside the range of possible scores for each variable. Frequency distributions were examined to ensure that obtained values corresponded to all possible categories. For continuous variables, means and standard deviations were reviewed to determine plausibility (Mertler & Vannatta, 2002).

Chi-square tests of independence and independent samples *t*-tests were conducted to determine whether significant differences emerged between cases with and without missing data for each variable (Mertler & Vannatta, 2002). The extent of missing data is reported in the Results section.

### Univariate and Bivariate Analyses

Univariate statistics, including percentages, means, and standard deviations, were computed to describe each variable of interest. Bivariate analyses were conducted to examine the distribution of responses on two variables. Chi-square tests of independence were computed to determine whether there were significant differences on categorical variables of interest (e.g., professional workshops, duration of self-directed learning, self-efficacy for engaging in professional practice). Chi-square tests of independence were also employed to determine proportional differences in correct answers on individual items on the knowledge measure and in

individual types of contact. Independent samples t-tests were used to examine whether differences between the two subsamples of students on continuous variables of interest (e.g., knowledge about ASD, attitudes toward working with persons with ASD, contact with persons with ASD). A paired t-test was conducted to determine whether there was a significant difference in students' self-efficacy for providing FCC to emerging adults with ASD and their families versus their self-efficacy for providing FCC to young children with ASD and their families. 34

A correlation matrix was computed to examine interrelationships among study variables, as well as to identify correlates of the dependent variable (i.e., self-efficacy for providing FCC). Significant correlates of self-efficacy with coefficients of .20 and greater were identified for inclusion in subsequent multivariate analyses. Correlations between two continuous variables were measured using the Pearson's product-moment correlation coefficient. When one variable is continuous and the other is dichotomous, and when both variables are dichotomous, biserial-point correlations are automatically computed in SPSS, allowing interpretation of the biserial-point correlation coefficient in the same manner as the Pearson's product-moment correlation coefficient (Brown, 1988).

**Multivariate Analyses**

Ordinary least squares (OLS) multiple regression was used to determine the model that best explained the variance in students' self-efficacy for providing FCC to persons with ASD and their families. When computing the OLS regression, significant correlates were entered into the model using the forced entry method, an appropriate approach if there is an insufficient theoretical or empirical basis for employing an alternate method of entering variables (Tabachinick & Fidell, 2012).

**Tests of Assumptions of OLS Multiple Regression**

Assumptions for OLS multiple regression are concerned with characteristics of model variables and about residuals, which are the portions of obtained scores not accounted for by the multivariate analysis (Tabachinick & Fidell , 2012). These assumptions must be met in order to achieve the best linear estimation. If they are not met, the data may be biased (Tabachinick & Fidell , 2012).

**Examination of residual scatterplots.** Tabachinick and Fidell (2012) recommended examining residual scatterplots, in addition to pre-screening data procedures, to assess for departures from the assumptions of normality, linearity, and homoscedasticity. Normality refers to the assumption that scores are normally distributed along a Bell curve, linearity assumes that there is a straight-line relationship among variables, and homoscedasticity refers to the assumption that the variability in scores for one continuous variable is generally the same at all values of another continuous variable (Mertler & Vannatta, 2002). If there are no violations of normality, linearity, and homoscedasticity, it is expected that the points on the residuals plots would cluster along a horizontal line in a rectangular pattern (Mertler & Vannatta, 2002).

**Outliers.** Multivariate outliers, or extreme scores on two or more variables, were determined using Mahalanobis distance, a statistical procedure that determines the distance of the value of a case from the value of the means of all the variables (Tabachinick & Fidell, 2012). These scores were examined for extreme values using a box-plot.

**Multicollinearity.** The correlation matrix was used to preliminarily diagnose multicollinearity, an issue where independent variables are highly correlated ($r > .80$) with one another (Tabachinick & Fidell, 2012). Variance inflation factors (*VIF*s) were also computed

simultaneously with the OLS multiple regression computation to assess multicollinearity (Tabachinick & Fidell, 2012).

# CHAPTER 5. RESULTS

This chapter will present the results of the univariate, bivariate, and multivariate analyses for the current study. Chi-square tests of difference and independent-samples t-tests were conducted to assess differences between social work and special education students on independent variables. Significant differences emerged on 9 out of 15 variables of interest. Bivariate correlations for each subsample (i.e., social work and special education) were computed among these variables and the dependent variable, self-efficacy for providing FCC to persons with ASD and their families. Among these independent variables that distinguished social work from special education students, four were significantly correlated with self-efficacy for FCC for social work students (attitudes, methods and duration of self-directed learning, and FCC-related learning) and two were significantly associated with self-efficacy for FCC for special education students (contact and FCC-related learning). The strength of the associations ranged from .211 to .417. Because these correlations were relatively weak, it was deemed acceptable to combine the subsamples for analyses.

## Sample Characteristics

The sample included 68 graduate special education students and 100 graduate social work students. Demographic characteristics included age, gender, and age. The typical participant was Caucasian, female, and in her early twenties.

### Demographics

As seen in Table 1, the majority of participants was Caucasian (75.5%) and female (90.1%). The mean age of participants was 28.3 (*SD* = 9.1). The range of participants' ages (21-63) was large; thus, the median (24.5) may be a more accurate indicator of the average age of participants.

Table 1. Demographic Characteristics (*N*=150-152)

| | *M* | *SD* | Range | Frequency | Valid % |
|---|---|---|---|---|---|
| Age | 28.3 | 9.3 | 21-63 | - | - |
| Gender | | | | | |
| Female | - | - | - | 137 | 90.1 |
| Male | - | - | - | 15 | 9.9 |
| Race | | | | | |
| African-American | - | - | - | 36 | 24.0 |
| Caucasian | - | - | - | 114 | 75.5 |

**Educational Background**

Table 2 shows the descriptive statistics and frequencies for participants' educational background characteristics, which included discipline, concentration or track, number of credit hours completed for degree, and university. A little over half of the participants (*n*=82; 53.2%) was enrolled in a specialized concentration for their degree program. The most common concentration was Applied Behavior Analysis for the special education group and Child and Youth for the social work group (see Table 4). The mean number of enrolled and completed credit hours for all participants was 27.77 (*SD*=15.646, Range= 6-96), indicating that participants, on average, had finished a little less than half of their 60-hour graduate program.

Participants were recruited from four different universities: Louisiana State University, Southeastern Louisiana University, Nicholls State University, and Northwestern State University of Louisiana. Graduate social work students were surveyed at Louisiana State University, and graduate special education students were surveyed at the other three schools. Table 2 shows the frequencies of participants from each university.

Table 2. Educational Background Characteristics (*N*=146-168)

| | *M* | *SD* | Range | Frequency | Valid % |
|---|---|---|---|---|---|
| Discipline of Study | | | | | |
| Social Work | - | - | - | 100 | 59.6 |
| Special Education | - | - | - | 68 | 40.5 |
| Credit Hours | 27.77 | 14.65 | 6-96 | - | - |
| Concentration | | | | | |
| No Concentration | - | - | - | 82 | 54.7 |
| Child and Youth (SW) | - | - | - | 22 | 13.1 |
| Gerontology (SW) | - | - | - | 7 | 4.7 |
| At-Risk Youth (SW) | - | - | - | 6 | 4.0 |
| Applied Behavior Analysis (SPED) | - | - | - | 20 | 11.9 |
| Early Intervention (SPED) | - | - | - | 5 | 3.3 |
| Elementary Mild/Moderate (SPED) | - | - | - | 3 | 2.0 |
| Educational Diagnostician (SPED) | - | - | - | 3 | 2.0 |
| High Incidence Disabilities (SPED) | - | - | - | 2 | 1.3 |
| University | | | | | |
| Louisiana State University (SW) | - | - | - | 100 | 59.6 |
| Nicholls State University (SPED) | - | - | - | 37 | 22.0 |
| Northwestern State University at Louisiana (SPED) | - | - | - | 27 | 16.1 |
| Southeastern Louisiana University (SPED) | - | - | - | 4 | 2.4 |

**Knowledge about ASD**

The mean knowledge score for all participants was 8.64 (*SD*=2.53), indicating that participants, on average, were able to answer only a little over half of the questions correctly on the questionnaire (8.64/15=57.6%). The maximum score received was 14 (See Table 3), indicating that no participants answered all questions correctly.

Table 4 presents the frequencies and percentages of incorrect and correct responses for each item on the knowledge scale. Most participants knew that many individuals with ASD do develop speech (92.0%), that self-injurious behaviors are not a requirement for a diagnosis of ASD (91.4%), and that there is no known cure for ASD (85.3%). Students most frequently did not know that most persons with ASD are not savants (81.0%), secretin is not a medically validated treatment for ASD (74.8%), and many individuals with ASD experience gastrointestinal issues (67.5%). Over half of the participants did not know that impairments in social communication and interaction (50.9%) and restrictive, repetitive, or stereotyped behaviors (61.7%) are key diagnostic criteria for ASD.

Table 3. Knowledge, Attitudes, and Contact ($N$ = 159-160)

| | *M* | *SD* | Range |
|---|---|---|---|
| Knowledge | 8.64 | 2.53 | 3-14 |
| Attitudes | 54.45 | 6.56 | 22-66 |
| Contact | 2.21 | 1.25 | 0-4 |

**Attitudes Toward Persons with ASD**

The mean score on the attitudes scale for all participants was 54.45 (*SD*=6.56), indicating a high level of positive attitudes toward persons with ASD (See Table 3). Table 5 presents the mean score for each item of the attitudes scale. Participants had the most positive attitudes about working with persons with ASD as being important to society (*M*=5.69, *SD*=0.77)) and the least positive attitudes about the financial benefits of working with persons with ASD (*M*=3.30, *SD*=1.33, see Table 7).

Table 4. Knowledge Scale: Frequency of Correct and Incorrect Items (*N*=162-163)

| | Correct | | Incorrect** | |
|---|---|---|---|---|
| | Frequency | Valid % | Frequency | Valid % |
| Most individuals with ASD never develop speech. * | 150 | 92.0 | 13 | 8.0 |
| Children must exhibit self-injurious behavior to receive a diagnosis of ASD. * | 149 | 91.4 | 14 | 8.6 |
| ASD can be cured with proper treatment. * | 139 | 85.3 | 24 | 14.7 |
| Most research-supported treatments involve intensive behavioral methods. | 121 | 74.7 | 41 | 25.3 |
| All children with ASD display atypical eye contact. * | 120 | 74.1 | 42 | 25.9 |
| Individuals with ASD typically perform better when tasks are presented visually than verbally. | 121 | 74.2 | 42 | 25.8 |
| ASD is more frequently diagnosed in males than in females. | 115 | 70.6 | 48 | 29.4 |
| Children must exhibit impaired social communication and interaction to be diagnosed with ASD. | 80 | 49.1 | 83 | 50.9 |
| ASD can be diagnosed as early as 18 months. | 99 | 60.7 | 64 | 39.3 |
| Most children with ASD have an accompanying intellectual disability. | 92 | 54.8 | 71 | 42.3 |
| Children must exhibit behavior or interests that are restrictive, repetitive and stereotyped to receive a diagnosis of ASD. | 62 | 38.3 | 100 | 61.7 |
| Epilepsy is a common co-occurring condition for individuals with ASD. | 55 | 33.7 | 108 | 66.3 |
| Many individuals with ASD experience gastrointestinal difficulties. | 53 | 32.5 | 110 | 67.5 |
| Injection of the hormone secretin in the stomach is a validated medical treatment for ASD. * | 41 | 25.2 | 122 | 74.8 |
| Individuals with ASD frequently have savant characteristics. * | 31 | 19.0 | 132 | 81.0 |

*Items are false **Incorrect refers to incorrect and "don't know" responses

Table 5. Attitudes Scale: Mean Item Scores (*N*=161-162)

| | *M* | *SD* |
|---|---|---|
| Working with individuals with ASD is important to society. | 5.69 | 0.77 |
| There is little hope for effecting change in individuals with ASD. * | 5.68 | 0.86 |
| Working with individuals with ASD would offer opportunities to develop important skills as a social worker/special educator. | 5.55 | 0.84 |
| Working with individuals with ASD would offer opportunities for personal growth. | 5.44 | 0.74 |
| Working with individuals with ASD would be depressing. * | 5.38 | 0.95 |
| Working with individuals with ASD deals with issues that make me uncomfortable. * | 5.04 | 1.21 |
| I would have concern for my physical safety if working with an individual with ASD. * | 4.97 | 1.23 |
| Working with individuals with ASD would offer opportunities for career advancement. | 4.89 | 1.07 |
| Working with individuals with ASD would be too demanding. * | 4.73 | 1.27 |
| Working with individuals with ASD is appealing due to my personal experiences with services. | 3.98 | 1.61 |
| A job working with individuals with ASD would be financially rewarding. | 3.30 | 1.33 |

* Items were reverse coded

**Contact with Persons with ASD**

The mean score for contact with persons with ASD for the entire sample was 2.21 (SD=1.25), indicating that the participants, on average, reported 2-3 different types of interactions with persons with ASD (See Table 3). Table 6 presents the frequencies and percentages of each type of contact with persons with ASD reported by participants. Most participants reported having interactions with a person with ASD in their personal lives (73.5%),

and about half of participants reported having contact with persons with ASD in field (47.5%), paid work (50.3%), and volunteer (49.7%) settings (See Table 6).

Table 6. Items on Contact Scale (*N*=159-162)

| | Frequency | Valid % |
|---|---|---|
| Personal | 119 | 73.5 |
| Paid Work | 81 | 50.3 |
| Volunteer | 79 | 49.7 |
| Field | 77 | 47.5 |

**Training in the Areas of ASD and FCC**

Table 7 summarizes the descriptive statistics, frequencies, and percentages for each of the 5 variables assessing to training in the areas of ASD and FCC: formal coursework, professional workshops, methods and duration of self-directed learning, and FCC-related training.

Table 7. Training (*N*=146-152)

| Type of Training | *M* | *SD* | Range | Frequency | Valid % |
|---|---|---|---|---|---|
| Formal Coursework | 2.63 | 2.23 | 0-8 | - | - |
| Professional Workshops | 0.99 | 2.38 | 0-20 | - | - |
| No Workshop | - | - | - | 105 | 66.0 |
| At Least 1 Workshops | - | - | - | 54 | 34.0 |
| Duration of Self-Directed Learning | 38.69 | 190.37 | 0-2000 | - | - |
| <5 Hours | - | - | - | 76 | 50.0 |
| >=5 Hours | - | - | - | 76 | 50.0 |
| Methods of Self-Directed Learning | 2.52 | 1.71 | 0-6 | - | - |
| FCC-Related Training | 58.47 | 13.3 | 12-72 | - | - |

**Formal Coursework**

The mean number of methods of instruction in which participants reported receiving information about ASD in their graduate programs was 2.63 (*SD*=2.23, see Table 7). Table 10 presents the frequencies and percentages for each method of instruction reported by participants. The most frequently reported method of instruction was "assigned readings" (*n*=95, 58.6%), and the least frequently reported method was "guest speaker" (*n*=22, 13.6%).

**Professional Workshops**

The range (0-20) and standard deviation (2.38) for professional workshops were large and the mode was zero; thus, the variable assessing formal workshops was dichotomized: those who attended no workshops on ASD and those who had attended at least one workshop focused on ASD. Approximately one third (34.0%) reported having attended at least one workshop focused on ASD-related issues. As seen in Table 7, the majority had never attended a workshop regarding ASD (63.0%).

Table 8. Formal Coursework: Frequency of Methods of Instruction (*N*=162-168)

| Method of Instruction | Frequency | Valid % |
|---|---|---|
| Assigned readings | 95 | 58.6 |
| Lecture presented by professor | 83 | 51.2 |
| Use of media | 77 | 47.5 |
| Course assignments | 63 | 38.9 |
| Presentation by classmates | 46 | 28.4 |
| Group project | 33 | 20.5 |
| Guest speaker | 22 | 13.6 |

**Self-Directed Learning**

Self-directed learning was measured with two variables: methods and duration.

**Methods.** The mean score for methods of self-directed learning was 2.52 (*SD*=1.71), indicating that participants, on average, reported engaging in between 2-3 types of self-directed learning about ASD (See Table 7). Table 9 presents the frequencies and percentages of each method of self-directed learning. The most frequently reported type of self-directed learning was "searching for resources and information online" (*n*=113, 69.8%); whereas, the least frequently reported method was "searching for resources and information at a physical library" (*n*=13; 8.0%).

Table 9. Self-Directed Learning: Frequency of Methods (*N*=162-168)

| | Frequency | Valid % |
|---|---|---|
| Searching for resources and information on websites | 113 | 69.8 |
| Reading magazines and news articles | 70 | 43.2 |
| Reading peer-reviewed journal articles | 69 | 41.1 |
| Watching webinars and videos online | 65 | 40.1 |
| Watching documentaries | 62 | 38.3 |
| Searching for resources and information at a physical library | 13 | 8.0 |

**Duration.** The mean number of hours of self-directed learning was 38.69 (SD=190.37), and the range was 0 to 2000 hours (See Table 7). Given the bimodal distribution of values, the variable was dichotomized. Participants reporting less than 5 hours of self-directed learning were assigned to the minimal self-directed learning group and those reporting more than 5 hours were

assigned to the substantial self-directed learning group. As seen in Table 7, exactly half of participants comprised each subsample (*n*=76).

**FCC-Related Training**

The mean score on the measure of FCC-related training was 58.47 (*SD*=13.30), indicating that participants reported receiving a high level of information about FCC in their graduate programs. Table 10 presents the mean score of each item of the measure assessing FCC-related training. Participants reported receiving information about "promoting an individual and developmental perspective" to a great extent (*M*=5.34, *SD*=1.13), and reported receiving information about "supporting youth as they transition to adulthood the least" (*M*=4.50, *SD*=1.46).

Table 10. FCC-Related Training: Mean Item Scores (*N*=159-161)

| To what extent did you receive information about… | *M* | *SD* |
|---|---|---|
| Promoting an individual and developmental approach? | 5.34 | 1.13 |
| Honoring cultural diversity and family traditions? | 5.21 | 1.39 |
| Recognizing the importance of community-based services? | 5.20 | 1.20 |
| Celebrating the successes and progress of children and their families? | 4.96 | 1.31 |
| Acknowledging the family as a constant in a child's life? | 4.91 | 1.48 |
| Building on family strengths? | 4.86 | 1.57 |
| Supporting the child in learning about and participating in his or her own care and decision -making? | 4.77 | 1.46 |
| Encouraging family-to-family and peer support? | 4.76 | 1.47 |
| Developing practices that are family-friendly and family-centered? | 4.74 | 1.42 |
| Developing policies that are family-friendly and family centered? | 4.62 | 1.46 |
| Developing systems that are family-friendly and family-centered? | 4.60 | 1.48 |
| Supporting youth as they transition to adulthood? | 4.50 | 1.46 |

### Self-Efficacy for Engaging in Professional Practice

Table 11 summarizes the descriptive statistics for the measures of self-efficacy for professional practice for each discipline. The mean score for the measure assessing self-efficacy for engaging in professional social work practice was 71.64 (*SD*=8.92), indicating high levels of self-efficacy. The mean self-efficacy score for special education practice was 62.48 (*SD*=7.62), which also indicates high levels of self-efficacy. The measure assessing self-efficacy for professional practice was dichotomized: One group represented the upper half of scores on both measures (i.e., more confident) and the other group represented the lower half of scores on both measures (i.e., less confident). The frequencies and percentages of the two groups representing the different levels of confidence for professional practice are presented in Table 11. The two groups are roughly proportional, with a slight majority of participants reporting higher levels of confidence for professional practice (*n*=83, 53.2%).

Table 11. Self-Efficacy for Professional Practice

| | *N* | *M* | *SD* | Range | Frequency | Valid % |
|---|---|---|---|---|---|---|
| Social Work | 100 | 71.64 | 8.92 | 43-84 | - | - |
| Special Education | 56 | 62.48 | 7.62 | 45-72 | - | - |
| Less Confident | - | - | - | - | 73 | 44.6 |
| More Confident | - | - | - | - | 83 | 55.4 |

### Self-Efficacy for Providing FCC to Persons with ASD and their Families

Students were asked to read two case studies illustrating two families, one of a young child with ASD and one of an emerging adult with ASD, and to rate their level of confidence in their abilities to complete FCC-related tasks in the context of each of the case studies. The mean

score on the self-efficacy scale was 152.89 (*SD*= 21.66, Range= 60-180), indicating a high level of self-efficacy for providing FCC to persons with ASD and their families.

### Self-Efficacy for Providing FCC to Young Children and Emerging Adults and their Families

A paired *t*-test was conducted to determine whether there was a difference between students' levels of self-efficacy for providing FCC to young children and for providing FCC to emerging adults. Students reported higher levels of self-efficacy for providing FCC to families of emerging adults (*M*=77.19, *SD*=9.77) than to those of young children (*M*=75.69, *SD*=12.52) with ASD, a significant difference of $t(150)=3.092$, $p<.01$.

### Differences Between Social Work and Special Education Students

Social work and special education students were compared on measures of demographics, educational background characteristics, knowledge about ASD, attitudes toward working with persons with ASD, contact with persons with ASD, training in the areas of ASD and FCC, self-efficacy for engaging in professional practice, and self-efficacy for providing FCC to persons with ASD and their families. Chi-square tests of independence were conducted when the variable was dichotomous, and independent samples t-tests were employed for continuous variables.

#### Demographics and Educational Background Characteristics

No significant difference emerged between social work and special education students with regard to gender, $\chi(1) =0.653$, $p=.42$. However, the proportion of African-American special education students was smaller than that of social work students, $\chi(1) =4.27$, $p <.05$. In terms of age, special education students (*M*=34.28, *SD*=11.73) were significantly older than social work students (*M*=15.13, *SD*=5.50), at $t(150)= 50.744$, $p<0.001$.

With regard to students' educational background characteristics, a significantly greater proportion of special education students (n=39, 70.9%) was enrolled in concentrations than

social work students ($n$=33, 33.3%; $\chi$= 20.05, df=1, p<.001). No significant differences in the mean number of completed credit hours emerged between special education ($M$=26.85, $SD$=16.45) and social work ($M$=28.30, $SD$=15.23) students, at $t$(144)=0.538, $p$=.591, indicating that both subsamples had completed the same amount of coursework in their graduate programs.

**Knowledge about ASD**

As seen in Table 12, special education students showed higher levels of knowledge about ASD than social work students, $t$(158)=-5.304, $p$<.001.

Differences between social work and special education students were examined with regard to correctly answered items of the ASD knowledge test. As seen in Table 13, the proportion of special education students was greater than that of social work students for

Table 12. Knowledge, Attitudes, and Contact: Differences Between Social Work and Special Education Students

| | *M* | *SD* | *t* | *df* | *p* |
|---|---|---|---|---|---|
| Knowledge | | | | | |
| Social Work | 7.86 | 2.34 | | | |
| Special Education | 9.87 | 2.34 | -5.304 | 158 | .000 |
| Attitudes | | | | | |
| Social Work | 53.37 | 5.76 | | | |
| Special Education | 56.23 | 7.40 | -2.719 | 157 | .007 |
| Contact | | | | | |
| Social Work | 1.60 | 1.09 | | | |
| Special Education | 3.18 | 0.81 | -9.756 | 157 | .003 |

correctly assessing knowledge about eye contact, rates of diagnoses by gender, early diagnosis, self-injurious behavior, research-supported behavioral treatments, gastrointestinal issues, and epilepsy. A greater proportion of special education students (84.1%) knew about eye contact than did social work (67.7%) students, $\chi(1) = 5.43$, $p = .020$. A greater proportion of special education (84.1%) than social work (67.7%) knew that males are diagnosed with ASD at a higher rate than are females, $\chi(1) = 9.11$, $p < .01$. Special education students (76.2%) were more likely than social work students (51.0%) to correctly answer that ASD can be diagnosed as early as 18 months, $\chi(1) = 10.29$, $p < .01$. Although most students in both groups knew that self-injurious behavior is not a required criterion for the diagnosis of ASD, a significantly greater proportion of special education (98.4%) than social work (87.0%) students correctly answered ($\chi = 6.41$, $df = 1$, $p < .05$). Special education students (88.7%) were more likely to know that most research-supported treatments for ASD involve intensive behavioral methods than were social work students (66.0%; $\chi = 10.44$, $df = 1$, $p < .01$). As shown in Table 13, special education students were more likely than social work students to correctly answer that gastrointestinal difficulties (50.8% and 21.0%, respectively; $\chi = 15.64$, $df = 1$, $p < .001$) and epilepsy (55.6% and 27.0%, respectively; $\chi = 5.26$, $df = 1$, $p < .05$) are common co-morbidities with ASD.

**Attitudes toward Working with and Contact With Persons with ASD**

As seen in Table 12, special education students ($M = 56.23$, $SD = 7.40$) showed significantly more positive attitudes about working with persons with ASD than did social work students ($M = 53.37$, $SD = 5.76$), $t(157) = -2.72$, $p < .01$.

In terms of contact with persons with ASD, Table 12 shows that special education students ($M = 3.18$, $SD = 0.81$) had more different types of interactions with persons with ASD than did social work students ($M = 1.60$, $SD = 1.09$), $t(157) = -9.756$, $p < .01$. Table 14 shows the

Table 13. Proportional Differences: Items on Knowledge Measure

| | Social Work | | Special Education | | |
|---|---|---|---|---|---|
| | N | Valid % | N | Valid % | *p* |
| Atypical eye contact | | | | | |
| Correct | 67 | 67.7 | 53 | 84.1 | |
| Incorrect | 32 | 32.3 | 10 | 15.9 | .020 |
| Visual presentation of tasks | | | | | |
| Correct | 69 | 69.0 | 52 | 82.5 | |
| Incorrect | 31 | 31.0 | 11 | 17.5 | .054 |
| Impairment in social communication and interaction as diagnostic criterion | | | | | |
| Correct | 34 | 54.0 | 29 | 46.0 | |
| Incorrect | 49 | 49.0 | 51 | 51.0 | .537 |
| Higher diagnosis rate for boys | | | | | |
| Correct | 62 | 62.0 | 53 | 84.1 | |
| Incorrect | 38 | 38.0 | 10 | 15.9 | .003 |
| Restrictive, repetitive and stereotyped behaviors as diagnostic criterion | | | | | |
| Correct | 65 | 65.7 | 28 | 44.4 | |
| Incorrect | 34 | 34.3 | 35 | 55.6 | .197 |
| No cure | | | | | |
| Correct | 85 | 85.0 | 54 | 85.7 | |
| Incorrect | 15 | 15.0 | 9 | 14.3 | .900 |
| Early diagnosis at 18 months | | | | | |
| Correct | 51 | 51.0 | 48 | 76.2 | |
| Incorrect | 49 | 49.0 | 15 | 23.8 | .001 |

Table 13 (Continued)

| | Social Work | | Special Education | | |
|---|---|---|---|---|---|
| | N | Valid % | N | Valid % | *p* |
| Self-injurious behavior not a diagnostic criterion | | | | | |
| Correct | 87 | 87.0 | 62 | 98.4 | |
| Incorrect | 13 | 13.0 | 1 | 1.6 | .011 |
| Speech development | | | | | |
| Correct | 92 | 92.0 | 58 | 92.1 | |
| Incorrect | 8 | 8.0 | 5 | 7.9 | .988 |
| Secretin as research-supported treatment | | | | | |
| Correct | 22 | 22.0 | 19 | 30.2 | |
| Incorrect | 78 | 78.0 | 44 | 69.8 | .242 |
| Comorbid intellectual disability | | | | | |
| Correct | 38 | 38.0 | 21 | 33.3 | |
| Incorrect | 62 | 62.0 | 42 | 66.7 | .546 |
| Savant characteristics | | | | | |
| Correct | 15 | 15.0 | 16 | 25.4 | |
| Incorrect | 85 | 85.0 | 47 | 74.6 | .100 |
| Research-supported behavioral treatment | | | | | |
| Correct | 66 | 66.0 | 55 | 88.7 | |
| Incorrect | 34 | 34.0 | 7 | 11.3 | .001 |
| Comorbid gastrointestinal issues | | | | | |
| Correct | 21 | 21.0 | 32 | 50.8 | |
| Incorrect | 79 | 79.0 | 31 | 49.2 | .000 |
| Comorbid epilepsy | | | | | |
| Correct | 27 | 27.0 | 28 | 55.6 | |
| Incorrect | 73 | 73.0 | 35 | 44.4 | .022 |

proportions of social work and special education students reporting the four different types of contact with persons with ASD. Significant differences emerged for field, paid work, and volunteer settings but not for personal settings (See Table 14). The proportions of special education students reporting contact in field paid work, and volunteer settings (74.2%, 90.3%, 73.8%, respectively) greatly exceeded those of social work students (31.0%, 25.0%, 34.0%, respectively). Roughly similar proportions of special education (79.0%) and social work (70.0%) students reported personal contact with persons with ASD (See Table 14).

Table 14. Proportional Differences in Types of Contact Between Social Work and Special Education Students

| | Social Work | | Special Education | | |
|---|---|---|---|---|---|
| | N | Valid % | N | Valid % | *p* |
| Field | | | | | |
| Yes | 31 | 31.0 | 46 | 74.2 | |
| No | 69 | 69.0 | 16 | 25.8 | .000 |
| Paid work | | | | | |
| Yes | 25 | 25.0 | 56 | 90.3 | |
| No | 74 | 74.7 | 6 | 9.7 | .000 |
| Volunteer | | | | | |
| Yes | 34 | 34.0 | 45 | 73.8 | |
| No | 64 | 65.3 | 16 | 26.2 | .000 |
| Personal | | | | | |
| Yes | 70 | 70.0 | 49 | 79.0 | |
| No | 30 | 30.0 | 13 | 21.0 | .206 |

**Training in the Areas of ASD and FCC**

Training was measured with 5 variables: formal coursework, professional workshops, methods of self-directed learning, duration of self-directed learning, and FCC-related training.

Table 15 summarizes training differences between the two subsamples with respect to formal coursework, methods of self-directed learning, and FCC-related training; and Table 16 presents differences between the two groups with regard to the dichotomized measures assessing professional workshops and duration of self-directed learning. Significant differences emerged between social work and special education students on measures of all training variables (See Tables 15 and 16).

Special education students (*M*=4.15, *SD*=2.17) reported a greater number of methods of instruction about ASD in their formal coursework than social work students (*M*=1.70, *SD*=1.70), *t*(159)= -7.966, *p*<.001 (see Table 17). Special education students reported approximately 4 different methods, whereas social work students reported, on average, only 1-2 methods. A similar trend was found for methods of self-directed learning. As seen in Table 15, special education students (*M*= 3.60, *SD*=1.43) reported using more methods of self-directed learning about ASD than social work students (*M*=1.85, *SD*=1.53), t(160)= -7.248, p<.001).

Table 15. Differences in Training Between Social Work and Special Education Students

| | *M* | *SD* | *t* | *df* | *p* |
|---|---|---|---|---|---|
| Formal coursework | | | | | |
| Social Work | 1.70 | 1.70 | | | |
| Special Education | 4.15 | 2.17 | -7.966 | 159 | .000 |
| Methods of self-directed learning | | | | | |
| Social Work | 1.85 | 1.53 | | | |
| Special Education | 3.60 | 1.43 | -7.248 | 160 | .000 |
| FCC-related training | | | | | |
| Social Work | 61.13 | 11.14 | | | |
| Special Education | 53.97 | 15.39 | 3.39 | 157 | .001 |

Table 16 shows that social work students ($M$=61.13, $SD$=11.14) reported receiving information about FCC in their graduate program to a greater extent than special education students ($M$=53.97, $SD$=15.39), $t(157)=3.39$, $p<.01$. As seen in Table 17, over 4 times as many special education (81.5%) than social work (18.5%) students reported attending professional workshops about ASD, $\chi(1) =64.29$, $p<.001$. Approximately 3 times more as many special education students (90.4%) as social work students (29.0%) reported engaging in self-directed learning about ASD for 5 hours or more, $\chi(1) =64.29$, $p<.001$.

Table 16. Proportional Differences: Training

| | Social Work | | Special Education | | |
|---|---|---|---|---|---|
| | N | Valid % | N | Valid % | *p* |
| Professional workshops | | | | | |
| At least one workshop | 10 | 18.5 | 44 | 81.5 | |
| No workshops | 88 | 89.8 | 17 | 27.9 | .000 |
| Duration of self-directed learning | | | | | |
| >= 5 hours | 29 | 29.0 | 47 | 90.4 | |
| < 5 hours | 71 | 71.0 | 5 | 9.6 | .000 |

**Self-Efficacy for Professional Practice and For Providing FCC to Persons with ASD and Their Families**

Social work and special education students completed discipline-specific measures of self-efficacy for professional practice. Scores on these latter measures were dichotomized and then combined to create a "less confident" group (i.e., lowest 50% of scores) and a "more confident" group (i.e., top 50% of scores). Roughly similar proportions of social work (52.0%) and special education students (55.4%) reported more confidence for professional practice.

In a similar vein, no significant differences emerged between social work and special education students with regard to self-efficacy for providing FCC to persons with ASD and their families. Differences between the two subsamples on measures of self-efficacy for providing FCC to young children and emerging adults with ASD and their families also were examined. Although the special education group ($M$=77.67, $SD$=9.88) had a slightly higher mean score than the social work group ($M$=74.73, $SD$=13.61) on measure of self-efficacy for providing FCC to young children with ASD, this difference was not significant. However, a significant difference emerged on the measure of self-efficacy for providing FCC to emerging adults with ASD and their families. Special education students ($M$=79.68, $SD$=8.19) reported significantly higher levels of self-efficacy than did social work students ($M$=76.02, $SD$=10.30), $t(150)$=-2.235, $p<.05$.

**Correlations Among Predictor Variables**

Among all associations shown in Table 17, the strongest correlation emerged between methods of self-directed learning and duration of self-directed learning ($r$ = .65).

Moderately strong, positive correlations also emerged between discipline and professional workshops ($r$ = .64), contact ($r$ =. 61), duration of self-directed learning ($r$ = .58), formal coursework ($r$ = .53), and methods of self-directed learning ($r$ = .50). These latter correlations mean that special education students attended more professional workshops on ASD, spent more time engaged in self-directed learning about ASD, reported more methods of receiving information about ASD in their graduate program, and engaged in more methods of self-directed learning than social work students. A moderate association emerged between discipline and age ($r$ = .47), indicating that special education students were older.

Concentration was moderately correlated with contact ($r$ = .46) and formal coursework ($r$ = .45), indicating that students enrolled in a concentration reported more types of contact with

persons with ASD and reported more methods of receiving instruction about ASD than students not enrolled in a concentration.

Knowledge was strongly correlated with contact and methods of self-directed learning (*r*s=.51). As knowledge about ASD increased, so did contact with persons with ASD, and moderately strong correlations emerged between contact and formal coursework (*r*=.58), methods of self-directed learning (*r*=.56), and duration of self-directed learning (*r*=.53). As contact with persons with ASD increased, so did amount of formal coursework and methods of self-directed learning. Students who engaged in more hours and different methods of self-directed learning also had more types of contact with persons with ASD. Contact and workshops were moderately correlated (*r*=.46), indicating that students who attended at least one workshop focused on ASD reported more types of contact with persons with ASD than students who did not attend any workshops.

Formal coursework was moderately strongly correlated with workshops (*r*=.55) and methods of self-directed learning (*r*=.51). Students who reported more coursework on ASD also reported attending workshops and participated in more methods of self-directed learning about ASD. Duration of self-directed learning and formal coursework had a moderate correlation (*r*=.40), indicating that the amount of time spent in self-directed learning increased with amount of coursework.

Workshops was moderately correlated with both methods of self-directed learning (*r* = .52) and duration of self-directed leaning (*r* = .46), indicating that attending workshops on ASD increased with both methods and duration of self-directed learning.

Table 17. Intercorrelations among Key Study Variables (*N*=138-162)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Age | - | .24 | .19* | .47** | .08 | .09 | .18* | -.03 | .31** | .10 | .26** | .21* | .28** | -.01 | .04 | .15 |
| 2. Gender | - | - | -.12 | -.07 | .10 | .04 | -.05 | -.08 | -.08 | .01 | -.05 | -.09 | -.02 | .07 | .00 | -.07 |
| 3. Race | - | - | - | .17* | .01 | .10 | .19* | .04 | .24** | .12 | .10 | .08 | .15 | -.13 | -.12 | -.08 |
| 4. Discipline | - | - | - | - | -.05 | .36** | .39** | .21** | .61** | .53** | .64** | .50** | .58** | .21** | .03 | .14 |
| 5. Credit Hours | - | - | - | - | - | .30** | .08 | -.14 | .12 | .27** | .04 | .02 | .06 | .27** | .04 | -.07 |
| 6. Concentration | - | - | - | - | - | - | .24** | .11 | .46** | .45** | .36** | .31** | .30** | .00 | .07 | .06 |
| 7. Knowledge | - | - | - | - | - | - | - | .23** | .51** | .31** | .38** | .51** | .42** | -.11 | .05 | .16 |
| 8. Attitudes | - | - | - | - | - | - | - | - | .29** | .22** | .10 | .33** | .31** | .07 | .31** | .36** |
| 9. Contact | - | - | - | - | - | - | - | - | - | .58** | .46** | .56** | .53** | .16* | .08 | .21* |
| 10. Formal Coursework | - | - | - | - | - | - | - | - | - | - | .55** | .52** | .40** | .01 | .12 | .08 |
| 11. Professional Workshops | - | - | - | - | - | - | - | - | - | - | - | .52** | .46** | -.09 | .04 | .06 |
| 12. SDL Methods | - | - | - | - | - | - | - | - | - | - | - | - | .65** | -.08 | .07 | .22** |
| 13. SDL Duration | - | - | - | - | - | - | - | - | - | - | - | - | - | -.04 | .13 | .23** |
| 14. FCC-Related Training | - | - | - | - | - | - | - | - | - | - | - | - | - | - | .33** | .25** |
| 15. Self-Efficacy for PP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | .51** |
| 16. Self-Efficacy for FCC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*p<.05, **p<.01, ***p<.001; SDL= self-directed learning, PP= professional practice

## Multivariate Analyses

After the subsamples were combined, another intercorrelation matrix was computed, and variables with significant bivariate correlations greater than .20 with the dependent variable were included as potential predictors in the OLS regression model. Six significant correlates emerged: attitudes, contact, FCC-related training, methods and duration of self-directed learning, and self-efficacy for professional practice (See Table 17). Correlations between self-efficacy for providing FCC and predictor variables ranged from -.07 (credit hours) to .51 (self-efficacy for professional practice) with no correlation over .80, indicating a low likelihood of issues with multicollinearity for the multivariate analyses (Tabachinick & Fidell, 2012).

Tabachinick and Fidell (2012) stated that the sample size necessary for adequate predictive power for multivariate analyses should follow a rule of thumb that $n \geq 50 + 8k$, where $k$ is the number of predictors, for multiple correlations. For this study, the OLS multiple regression model with 6 predictor variables indicated the need for a sample size of 98 for multiple correlations; thus, there are sufficient cases for this study to ensure adequate statistical power.

Eighteen cases (10.7%) of the 168 returned surveys had missing data on the dependent variable (i.e., self-efficacy for providing FCC). Table 18 presents the frequencies and percentages of missing data for each of the predictor variables of interest; and the results of independent samples *t*-tests to assess for differences in scores on the dependent variables between cases with missing data and without missing data. Because there were no missing data for discipline and methods of self-directed learning, these variables are not shown in Table 18. There were small proportions of missing data for each of the variables presented in Table 18 ranging from 0.7% (formal coursework) to 7.3% (duration of self-directed learning). No significant differences between missing and non-missing data were found; thus, listwise deletion

was used, an appropriate approach for addressing missing data in this situation (Mertler & Vannatta, 2002).

Ordinary least squares (OLS) multiple regression was used to determine the combination of independent variables that best predicted self-efficacy for providing FCC. When computing the OLS regression, significant correlates (attitudes, contact, FCC-related training, methods of self-directed learning, duration of self-directed learning, and self-efficacy for professional practice) were entered using the forced entry method. Examination of residual scatterplots revealed that there were no obvious violations of normality, linearity, or homoscedasticity (Mertler & Vannatta, 2002). Upon examining the Mahalanobis distances of all cases, three outliers were eliminated (Mertler & Vannatta, 2002). Regression results indicated an overall model that significantly predicted self-efficacy for providing FCC, $R^2$=.381, $R^2_{adj}$=.351, $F(6,127)=13.00$, $p<.001$. This model accounted for approximately 38% of the variance in self-efficacy for providing FCC. A summary of regression coefficients is presented in Table 19. Among all predictors, only three significantly contributed to the model (i.e., attitudes, FCC-related training, self-efficacy for discipline-specific professional practice). Variance inflation factors (*VIF*s) were also computed simultaneously with the OLS regression to assess for issues with multicollinearity. Because no VIFs were over 10, muticollinearity was not considered a problem for these data (Tabachinick & Fidell, 2012).

As part of a post-hoc exploratory analysis, an additional multivariate model was conducted to examine the extent to which all variables of interest (rather than only significant bivariate correlates as in the original model) predicted graduate students' self-efficacy for providing FCC to persons with ASD and their families. The addition of these independent variable did not improve model fit.

Table 18. Frequencies, Percentages, and Mean Differences for Missing Data

| | | Frequency | Valid % | *M* | *SD* | *t* | *df* | *p* |
|---|---|---|---|---|---|---|---|---|
| Age | | | | | | | | |
| | Non-Missing | 147 | 98.0% | 152.74 | 21.83 | | | |
| | Missing | 3 | 2.0% | 160.00 | 8.66 | -0.573 | 148 | .567 |
| Gender | | | | | | | | |
| | Non-Missing | 147 | 98.0% | 152.81 | 21.75 | | | |
| | Missing | 3 | 2.0% | 156.67 | 19.55 | -0.304 | 148 | .761 |
| Race | | | | | | | | |
| | Non-Missing | 146 | 97.3% | 153.03 | 21.64 | | | |
| | Missing | 4 | 2.7% | 147.50 | 25.00 | 0.503 | 148 | .616 |
| Credit Hours | | | | | | | | |
| | Non-Missing | 143 | 95.3% | 152.47 | 21.89 | | | |
| | Missing | 7 | 4.7% | 161.43 | 14.80 | -1.070 | 148 | .287 |
| Concentration | | | | | | | | |
| | Non-Missing | 149 | 99.3% | 152.87 | 21.73 | | | |
| | Missing | 1 | 0.7% | 155.00 | - | -0.098 | 148 | .922 |
| Knowledge | | | | | | | | |
| | Non-Missing | 147 | 98.0% | 152.63 | 21.76 | | | |
| | Missing | 3 | 2.0% | 165.67 | 11.72 | -1.033 | 148 | .303 |
| Attitudes | | | | | | | | |
| | Non-Missing | 147 | 98.0% | 153.13 | 21.55 | | | |
| | Missing | 3 | 2.0% | 141.00 | 28.93 | 0.960 | 148 | .339 |
| Contact | | | | | | | | |
| | Non-Missing | 148 | 98.7% | 152.69 | 21.72 | | | |
| | Missing | 2 | 1.3% | 167.50 | 10.61 | -0.960 | 148 | .338 |
| Formal Coursework | | | | | | | | |
| | Non-Missing | 149 | 99.3% | 152.84 | 21.72 | | | |
| | Missing | 1 | 0.7% | 160.00 | - | -0.329 | 148 | .743 |
| Professional Workshops | | | | | | | | |
| | Non-Missing | 148 | 98.7% | 153.16 | 21.67 | | | |
| | Missing | 2 | 1.3% | 132.50 | 0.71 | 1.344 | 148 | .181 |

Table 18 (continued)

| | Frequency | Valid % | *M* | *SD* | *t* | *df* | *p* |
|---|---|---|---|---|---|---|---|
| Duration SDL | | | | | | | |
| Non-Missing | 139 | 92.7 | 152.53 | 22.26 | | | |
| Missing | 11 | 7.3 | 157.36 | 11.27 | -0.711 | 148 | .478 |
| Self-Efficacy PP | | | | | | | |
| Non-Missing | 146 | 97.3 | 152.51 | 21.75 | | | |
| Missing | 4 | 2.7 | 166.75 | 13.23 | -1.301 | 148 | .195 |

Note: SDL= self-directed learning, PP= professional practice

Table 19. Coefficients for OLS Regression Model Variables

| | *B* | ß | *t* | *p* | Bivariate *r* | Partial *r* |
|---|---|---|---|---|---|---|
| Attitudes | 0.784 | .207 | 2.660 | .009 | .363 | .230 |
| Contact | 1.833 | .107 | 1.169 | .244 | .183 | .103 |
| Duration of Self-Directed Learning | -1.613 | -.037 | -0.370 | .712 | .199 | -.033 |
| Methods of Self-Directed Learning | 1.531 | .116 | 1.128 | .262 | .182 | .100 |
| FCC-Related Training | 0.417 | .224 | 2.937 | .004 | .323 | .252 |
| Self-Efficacy for Professional Practice | 17.132 | .389 | 5.034 | .000 | .516 | .408 |

# CHAPTER 6. DISCUSSION

This cross-sectional, correlational study examined predictors of graduate social work and special education students' self-efficacy for providing FCC to persons with ASD and their families. The present study provided a comprehensive description of students' demographics, educational background characteristics, knowledge about ASD, attitudes toward working with persons with ASD, contact with persons with ASD, training in the areas of ASD and FCC, and self-efficacy for professional practice. Differences between social work and special education students on measures of these key variables were assessed. The current study also examined interrelationships among major variables of interest and identified empirically relevant correlates of the dependent variable. Multivariate analyses yielded a set of predictors that explained the variance in self-efficacy for providing FCC to persons with ASD and their families.

In this chapter, the results of the current study are first summarized and then reviewed in the context of relevant literature. Implications for social work practice, education, and research are delineated. This chapter concludes with a discussion of how the current study contributes to the knowledge base about students' preparedness and self-efficacy for working with persons with ASD and their families, and for providing FCC, in particular.

## Self-Efficacy for Providing FCC to Persons with ASD and their Families

In the current study, self-efficacy for providing FCC to persons with ASD and their families was assessed using a novel, case study approach. Participants were asked to read two case vignettes and rate their perceptions of their self-efficacy for engaging in different FCC practice behaviors related to each of the scenarios on a 30-item, researcher-developed measure. The vignettes illustrated cases concerning a nineteen-year-old emerging adult with ASD and a 5-year-old child with ASD and their families, and included common child and family issues related

to the emerging adulthood and young childhood developmental periods, respectively. This is the first known study to incorporate case studies within a measure that assesses for FCC practice self-efficacy.

The current study found that participants reported moderately high levels of self-efficacy for providing FCC to persons with ASD and their families, which is inconsistent with previous research that reported low (Werner & Grayzman, 2011) to moderate (Corona et al., 2017; Dinecola & Lemieux, 2015; Ruble et al., 2011) levels of self-efficacy for working with persons with ASD, in general, among social work students. The higher levels of self-efficacy among the current sample could also be due to measurement or sample differences. However, this unexpected finding is also encouraging in that the participants in the current study may be genuinely more confident in their abilities to provide FCC to persons with ASD than participants in previous studies were regarding their practice with this population.

Although students' discipline of study was weakly associated with level of FCC-related training, no significant differences emerged between the social work and special education students' self-efficacy for providing FCC. This is an unexpected finding, given that social work students are exposed to numerous components of FCC in their core social work curriculum and that FCC-related training emerged as a significant predictor of self-efficacy for providing FCC. However, this latter result may be explained by special education students' higher levels of knowledge, as compared to social work students.

### Predictors of Self-Efficacy for Providing FCC to Persons with ASD

The current study yielded a multivariate model that explained approximately 38% of the variance in participants' self-efficacy for providing FCC to persons with ASD and their families.

Self-efficacy for engaging in professional practice, attitudes toward working with persons with ASD, and FCC-related training emerged as significant predictors of self-efficacy for providing FCC.

**Self-Efficacy for Engaging in Professional Practice**

In the current study, the most influential predictor of self-efficacy for providing FCC to persons with ASD and their families was self-efficacy for professional practice. This means that participants who were confident in their abilities for generalist practice in their discipline also were confident in their abilities to provide FCC. This is an expected finding as it is consistent with practice, theory, and prior research.

In terms of practice, the knowledge and skills associated with self-efficacy for general professional practice and self-efficacy for providing FCC specifically likely overlap. SCCT posits that personal, contextual, and experiential factors influence self-efficacy and outcome expectations (i.e., attitudes) and that self-efficacy and outcome expectations indirectly impact career interest, behaviors, and performance (Lent & Brown, 1996; Lent et al., 2010). Considering SCCT, the current study assumed that participants' general self-efficacy for professional practice was a contextual factor for the context-specific self-efficacy for providing FCC, which theoretically impacts interest in and the actual practice and performance of providing FCC to persons with ASD and their families. This assumption was confirmed by the current study's finding that self-efficacy for engaging in professional practice emerged as a significant predictor of self-efficacy for providing FCC to persons with ASD and their families in a multivariate model. This finding is consistent with research conducted by Zhang et al. (2014) with undergraduate education majors that demonstrated a significant and positive relationship

between self-efficacy for teaching, in general, and self-efficacy for teaching students with disabilities.

**Attitudes toward Working with Persons with ASD**

Attitudes toward working with persons with ASD also emerged as a significant predictor of students' self-efficacy for providing FCC to persons with ASD and their families. This is an expected finding given the role of attitudes (i.e., outcome expectations) in SCCT. According to SCCT, attitudes influence self-efficacy directly; and attitudes affect career interests, behavior, and interests indirectly through self-efficacy (Lent & Brown, 1996). The findings from previous research are mixed. Studies showed a link between practitioner and student attitudes and FCC practice behaviors (Christon & Myers, 2015), career interests (Werner & Grayzman, 2011; Zhang et al., 2014) and teaching efficacy (Morris et al., 2017). However, Dinecola and Lemieux (2015) found that attitudes toward persons with ASD were not significantly associated with graduate social work students' self-efficacy for working with persons with ASD. This difference could be due to measurement and sample differences among the current and previous studies.

Overall, students held very positive attitudes toward working with persons with ASD, a finding also reflected in the extant research examining practitioner and student attitudes with particular emphasis on inclusion of individuals with ASD in mainstream educational settings (e.g., Mavropoulou & Padeliadu, 2000; Preece & Jordan, 2007; Rakap et al., 2016). Participants in the current study reported the most positive attitudes about effecting change in persons with ASD, the importance of the work to society, and the opportunity to develop important professional skills. Conversely, students reported the least positive attitudes about the lack of financial incentives and intensive demands. These latter findings are consistent with those reported by Werner (2011), who found that undergraduate social work students held positive

attitudes about the opportunities for personal and professional growth afforded by working with persons with ASD and also held negative attitudes about the demands of working with the population.

Special education students in the current study reported more positive attitudes toward working with persons with ASD than did social work students, a finding that is reflected in other studies. For example, Werner and Grayzman (2011) found that undergraduate social work students held somewhat negative attitudes and expressed doubt about whether social workers could help persons with ASD. In a separate study, Park et al. (2010) showed that special education students held positive views about how their profession could be effective when working with this population. Although both disciplines reported positive attitudes, special education students are more likely to work with individuals with ASD in their future practice than social work students. SCCT may explain this difference because students' attitudes about their discipline's ability to help persons with ASD (i.e., outcome expectations) are related to self-efficacy for providing FCC. Attitudes were significantly correlated with contact, coursework, and both methods of and time spent engaging in self-directed learning, which suggests that attitudes could be an important target for education and training interventions.

**FCC-Related Training**

FCC-related training emerged as a significant predictor of self-efficacy for providing FCC to persons with ASD and their families, which was an expected finding. However, none of the training variables specific to ASD (e.g., formal coursework, workshops, methods and duration of self-directed learning) were associated with self-efficacy for providing FCC, which was somewhat unexpected. These findings taken together suggest that FCC-related training may have a more pertinent role in enhancing students' self-efficacy for providing FCC to persons

with ASD and their families than training specific to ASD. The current study's findings are supported by previous research as the relationship between training and self-efficacy varies across studies (e.g., Corona et al., 2017; Dinecola & Lemieux, 2015, Morris et al., 2017), which is likely the result of the use of different measurement and sampling approaches.

Social work students in the current study reported significantly more FCC-related training than did special education students, a finding that is consistent with social work scholars who assert that social work practitioners are well-prepared to provide FCC to persons with ASD and their families (e.g., Iannuzzi et al., 2015; Laws et al., 2010). The difference in FCC-related training between special education and social work students also is consistent with previous research. For example, Christon and Myers (2015) found that social workers reported a greater emphasis on FCC in their graduate programs, as compared to professionals from other disciplines who work with persons with ASD.

Christon and Myers (2015) also found that FCC-related training, measured as the extent to which their graduate program focused on FCC, in combination with attitudes and self-efficacy, predicted professionals' self-reported use of FCC practices. In the current study, FCC-related training was defined as the extent to which students have received information about the 10 core principles of FCC in their graduate programs. The fact that FCC-related training predicted self-efficacy for providing FCC in the current study, along with Christon and Myer's (2015) findings, suggests that graduate programs have a pertinent role in the formation of students' self-efficacy for providing FCC and students' future practice using FCC. In sum, the findings of the current study suggest that students need coursework and experiential opportunities through their graduate programs that are specific to FCC in order to be confident in their abilities to provide FCC to persons with ASD and their families.

### Self-Efficacy for Providing FCC to Young Children and Emerging Adults with ASD and their Families

Research has shown that the exit out of high school and into adulthood (i.e., emerging adulthood) is a critical period for individuals with ASD and their families, with effects on both the individual (e.g., Taylor & Seltzer, 2010, Woodman et al., 2015; Woodman et al., 2016) and the family (e.g., Barker et al., 2011). Given the constant stream of individuals with ASD entering adulthood (Roux et al., 2015) and the bidirectional link between individual and family outcomes (e.g., Taylor & Seltzer, 2010; Woodman et al., 2015), the need for professionals who are able to provide competent and compassionate care for emerging adults with ASD, while emphasizing the importance of their families, is dire. Additionally, research has found that having received early intervention during young childhood predicts better outcomes for adults with ASD (Henninger & Taylor, 2013). Thus, the focus on both young childhood and emerging adulthood in the current study was appropriate.

The current study yielded no significant difference between participants' level of self-efficacy for providing FCC to young children and their level of self-efficacy for providing FCC to emerging adults. Given that FCC is a primary focus of early intervention (e.g., Tomasello, Manning, & Dulmus, 2010), the fact that participants reported more confidence in their abilities to provide FCC to emerging adults and their families is somewhat surprising. There was no significant difference between social work and special education students' self-efficacy for providing FCC to young children with ASD; however, results showed that special education students were significantly more confident in their abilities to provide FCC to emerging adults with ASD and their families than were social work students.

Although the setting was not specified in the case example for the emerging adult, the presenting problem (e.g., transition planning) could have been interpreted by respondents as a

school-based problem, which may explain why special education students had higher levels of self-efficacy. Special education students also reported more contact with persons with ASD. Social work students in the current sample have few field sites that provide services to adolescents and adults with ASD and other related developmental disabilities. This dearth of opportunities for exposure to persons with ASD at this developmental period may contribute to social work students' low ratings of self-efficacy for providing FCC to emerging adults with ASD. These findings also could be influenced by the possibility of measurement error. Factors other than the developmental level of the child may have influenced participants' responses. For example, an ethnic name was chosen for the emerging adulthood case study in an effort to emphasize diversity, as recommended by one of the expert content validity reviewers. Further validity testing to ensure that the case studies and sub-measures accurately represent working with persons with ASD and their families at each of these two developmental levels is warranted.

### Knowledge about ASD

The current study assessed graduate social work and special education students' knowledge about ASD with a 15-item measure, which was a shortened version of a 30-item knowledge test used by Dinecola (2012) and Dinecola and Lemieux (2015) with social work students. Prior to including in the current study, the measure was reviewed by a panel of ASD experts to establish content validity. Based on their feedback, half of the items were removed, due to the possibility of respondent fatigue; and a few remaining items were reworded for clarity. Because knowledge about ASD is constantly in flux due to the rapid rate of research being published to understand this condition, regular reviews of validity of knowledge measures are necessary.

Overall, students showed relatively low levels of knowledge about ASD, with students correctly answering only a little over half (58%) of the questions. This finding is somewhat similar to that of Hauber et al. (2015), who showed that novice special education teachers correctly answered 63% of questions on a similar knowledge test composed of 50 items. The correct response rate of 58% in the current study notably exceeds the 48% rate reported by Dinecola and Lemieux (2015) who used a similar test of knowledge with graduate social work students.

In terms of substantive areas, Dinecola and Lemieux (2015) with regard to students' knowledge about evidence-based treatments for ASD. Dinecola and Lemieux (2015) found that social work students knew the most about diagnostic criteria and general characteristics of ASD and the least about evidence-based treatments for ASD. Although most participants (74.7%) in the current study knew that research-supported interventions for ASD include an intensive behavioral component, few participants (26.7%) knew that secretin injections are not an evidence-based treatment for ASD. The current study further showed that the majority of students incorrectly answered items about most individuals with ASD having savant characteristics (false), and about co-morbid conditions (e.g., gastrointestinal issues, epilepsy, true).

Students' level of knowledge about diagnostic criteria was lower in the current study than that reported by Dinecola and Lemieux (2015), who found that knowledge about diagnostic criteria was a strength among their sample of graduate social work students. In the current study, the majority of social work students did not know that impairments in social communication and interactions, and restrictive, repetitive behaviors are required criteria for a diagnosis of ASD. Since Dinecola and Lemieux (2015) administered their survey in 2012, the APA (2014) has

made significant changes to the categorization of and diagnostic criteria for autism spectrum disorder. Students' perception of their ability to answer questions about diagnostic criteria may have been affected by these recent changes. Some participants may have based their responses on DSM-IV-TR criteria for autistic disorder or other pervasive developmental disorders from DSM-IV-TR, and others may have been unsure of their answers given the new guidelines.

The level of knowledge about ASD among special education students was significantly higher than that among social work students, with particular regard to characteristics, diagnostic criteria, comorbidities, and research-supported behavioral treatments. This latter finding is not surprising, given that special education students also reported more contact, formal training, workshops, and self-directed learning than did social work students. Further these latter variables also showed significant associations with knowledge, with coefficients ranging from .23 (attitudes) to .51 (contact).

**Contact with Persons with ASD**

The current study described the types of settings in which social work and special education students interacted with persons with ASD. Overall, special education students reported significantly more types of contact with persons with ASD than did social work students. Special education students also reported more interactions with persons with ASD in field, paid work, and volunteer settings than did social work students; however, no significant difference emerged between social work and special education students on the measure of personal contact.

These latter differences may be explained by the professional preparation afforded to special education students in their formal training. In the current study, special education students reported significantly more coursework regarding ASD and contact with persons with

ASD via field practicum experiences than did social work students. Special education students who reported more contact with persons with ASD in paid work, also may have been more likely to be exposed to opportunities to interact with persons with ASD in volunteer settings. The striking differences in the proportions of special education students reporting contact in paid, field, and volunteer settings, as compared to social work students, lends support to this latter interpretation.

## Training in the Area of ASD

Participants in the current study reported receiving information about ASD through 2-3 methods, on average, in their graduate programs. The most frequently reported method was assigned readings. Only a third of participants (34.0%) reported having attended a workshop focused on ASD-related issues. Students reported engaging in approximately 2-3 different methods of self-directed learning about ASD, on average, and the most frequently reported method was searching online for information and resources about ASD.

Although disability content is a mandated curricular component of CSWE-accredited MSW programs (CSWE, 2015), social work education programs do not provide adequate opportunities for students to learn about disability through coursework and field practicum experiences (Laws et al., 2010; Dababnah et al., 2011; Gourdine & Sanders, 2002; Margo-Wilson et al., 2008), an observation reflected in the findings of the current study. Although special education programs are not specifically mandated to provide information on ASD and DD, their inclusion is implied, as CEC standards emphasize that programs should prepare advanced special educators to work with diverse populations, which includes students with different types of disabilities Because this is not explicit, the extent of specific content on ASD and DD that appears in graduate-level special education coursework may vary across programs.

Also, some special education programs may focus exclusively on ASD issues, such as specialized programs that offer coursework and experience needed to sit for the Board-Certified Behavior Analyst exam, which allows passing practitioners to provide Applied Behavior Analysis, the gold standard of treatment for ASD (e.g., Wong et al., 2014).

Although formal coursework, professional workshops, and self-directed learning were associated with knowledge; the strongest relationships emerged between both methods and duration of self-directed learning and knowledge, findings that are consistent with those of Hauber et al. (2015), who showed that self-directed learning demonstrated a greater impact on knowledge about ASD than formal training among novice special education teachers. Because self-directed learning had this impact, social work educators should consider the use of instructional strategies that allow students to independently engage in diverse learning opportunities in the area of ASD.

## Sample Characteristics

Demographic characteristics of graduate social work students sampled in the current study were similar to those reported by the CSWE (2017) for students enrolled in U.S. MSW programs with regard to age and gender. The average age of social work students in the sample was 25 years, which is consistent with CSWE (2017) survey data showing that 72.2% of students in U.S. MSW programs were under 34 years of age. In the current study, 88.7% of participants were female, which is comparable to the national rate of 85.0% reported by CSWE (2017). With regard to race and ethnicity, 70.1% of participants for whom data were available in the current study identified as Caucasian, 30.2% identified as African-American, 2% identified as Hispanic, and 2% reported a different race. These latter proportions are somewhat different than those reported by CSWE (2017) for U.S. MSW students, with 54.4% Caucasian, 17.7% African-

American, 10.8% Hispanic, and 10.8% reporting a different race. Racial differences likely are due to the geographic location of the university sites, which were in a southern, Gulf coast state. The demographic characteristics of social work students in the current study were similar to those of participants in previous studies examining social work student training, which sampled proportionately Caucasian females in their mid-20s (e.g.., Dinecola, 2012; Dinecola & Lemeiux, 2015, Olson, 2011).

Although no studies have synthesized demographics of students enrolled in U.S. special education master's programs, Okahana and Zhou (2017) reported race and gender statistics, but not age, for U.S. students enrolled in graduate education programs using data from the 2016 Council on Graduate Schools/Graduate Record Examinations Survey of Graduate Enrollment and Degrees. The latter study included students enrolled in different specializations of master's and doctoral programs in education (e.g., general education, special education). In the current study, 75% of special education participants were female, which is almost identical to the proportion of 75.1% reported by Okahana and Zhou (2017). In terms of race, 85.2% of special education students in the current study identified as Caucasian, 13.0% as African American 11.1% as Hispanic, and 6.3% as a different race. These latter results are somewhat different from those of Okahana and Zhou (2017) who reported that 64.1% of U.S. graduate education students identified as Caucasian, 13.4% as African American, 11.1% as Hispanic, and 6.3% as a different race. Similar to the racial differences that emerged between social work students in the current study and those described by CSWE (2017), the differences between special education students in the current and the Okahana and Zhou (2017) study could be due to geographic location of the current study sites. Further, the Okahana and Zhou (2017) study included all graduate education majors (including special education) so racial differences may be a result of sampling.

It should be noted that approximately one fifth of students did not report race in the current study. Questions about race were included at the end of the study instrument; thus, participants may have skipped those items because of respondent fatigue. In general, these findings suggest that the sample used in the current study reflects the characteristics of those from nationally representative samples. However, this study only focuses on students in one southern state; thus, findings can be generalized to students in similar geographic areas who are enrolled in similar graduate social work and special education programs.

## Limitations of the Current Study

The current study is not without its limitations. There were limitations in the areas of research design, measurement, sampling, and methods of analysis. The current study was cross-sectional, meaning that data were collected at only one point of time (Rubin & Babbie, 2010). Longitudinal studies would provide more information about the development and trajectory of students' self-efficacy for providing FCC to persons with ASD and their families over time. For example, in future studies, measures could be administered to students before, during, and after the completion of graduate programs. This would allow researchers to identify critical points and experiences in the development of self-efficacy among diverse groups of students.

A major limitation of the current study is that only one source of self-report data was used. Self-report data can be influenced by problems of recall and social desirability, and results from measures assessing attitudes can be particularly biased by social desirability (Rubin & Babbie, 2010). Among all measures used in the current study, those assessing attitudes toward working with persons with ASD, self-efficacy for professional practice, and self-efficacy for FCC with persons with ASD and their families were most susceptible to this bias. In future studies, researchers should include a reliable and valid measure of social desirability, like the

Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960) whenever measuring self-efficacy and attitudes. It also would be ideal to include measures of actual FCC practice competence rather than only measure self-efficacy for FCC practice. For example, future research should include multiple-choice tests that ask respondents to select the best answers to questions about evidence-based FCC practices with persons with ASD and their families. Such an approach would enable researchers to examine the relationship between self-efficacy for and competence to practice FCC, as well as describe how these constructs influence the formation of students' career interests, intentions, behaviors, and performance.

Also, with regard to measurement, the bulk of instruments used in the current study, including the measure assessing self-efficacy for providing FCC to persons with ASD and their families, were developed by the researcher. Although the self-efficacy for FCC scale had good internal consistency and content validity, it is still new and needs further psychometric testing to establish its empirical validity with different student populations. It is unknown whether the scale fully measured what it was intended. Participants' high scores on self-efficacy for FCC were inconsistent with findings from previous research (e.g., Corona et al., 2017; Dinecola & Lemeiux, 2015; Werner, 2011), which suggests that the participants in the current study either have an unusually high level of confidence in their abilities, measurement error may be present, or both. Measurement issues could also possibly influence the finding that self-efficacy for professional practice was connected to self-efficacy for providing FCC. The current study used researcher-developed scales to assess self-efficacy for professional social work and special education professional practice. Because these scales were not equivalent, the data were transformed into a new dichotomized variable to standardize these data. This transformation may have also contributed to measurement error.

The multivariate model used in the current study included six, significant bivariate correlates with coefficients of .20 or greater. Although the obtained model explained at least 38% of the variance in self-efficacy for FCC practice, it is possible that the model was misspecified because relevant variables, including interaction terms, were omitted (Tabachinick & Fidell, 2012). For example, other variables associated with self-efficacy, such as vicarious experience (e.g., Bandura, 1997) and personality traits (e.g., Stajkovic, Bandura, Locke, Lee, & Sergent, 2018), were not included as potential predictors. Self-efficacy was the focus on the current study because it has an important theoretical role in the development of career interests, which is also linked to career behavior and performance (Lent & Brown, 1996). It is possible that interactions among discipline and knowledge, attitudes, contact, and training are important for inclusion in subsequent models. Finally, it appears that the interrelationships among these latter variables and self-efficacy for both professional and FCC practice are complex. However, more sophisticated statistical analyses are needed to assess the nature of these relationships further. Using SCCT as a conceptual framework, future studies should test these complex associations via structural equation modeling with larger and more representative samples of students (Kline, 2016).

The current study was the first known study to compare the preparation and readiness of social work and special education students for providing FCC to persons with ASD and their families. However, special education students, as compared to social work students, were relatively underrepresented (at 40.5%). Due to issues of statistical power, the subsamples of social work and special education students were combined for multivariate analyses and discipline was included as a potential predictor of self-efficacy for FCC practice. Although student discipline did not emerge as a correlate, future research should seek to identify predictors of self-efficacy among distinct student disciplines using reliable and valid measures. Such an

approach would yield knowledge with direct implications for discipline-specific education and training.

Because a non-probability sampling approach was used, sampling error cannot be estimated; however, sampling error is possibly present in the current study, which affects representativeness and generalizability (Rubin & Babbie, 2010). Methods for recruiting social work and special education students differed, and most special education students took the survey online, whereas all of the social work students completed paper surveys. The response rate was much higher for the social work students than the special education students. This is likely due to the fact the researcher was familiar to the social work students and the researcher administered the survey in person (Dillman, Smyth, & Christian, 2014). A self-selection bias may exist for the students taking the survey online. For example, students who were already interested in or affected by ASD may have been more likely to complete the survey than those who were not, and there may be other unknown differences between those who chose to participate in the online survey and those who did not (Dillman et al., 2014). Caution should be used when generalizing the findings of the current study to dissimilar populations of social work and special education students due to these issues of sampling error (Rubin & Babbie, 2010).

## Merits of the Current Study

Although previous research has explored factors related to FCC practices (e.g., Christon & Myers, 2015), the current study is the first known study that specifically examined self-efficacy for using FCC among graduate social work and special education students. This is important because self-efficacy, a key social cognitive construct, is integral to the development of career interests, behaviors, and performance (Lent & Brown, 1996). The current study identified a set of correlates (e.g., self-efficacy for professional practice, attitudes toward

working with persons with ASD, and FCC-related training) that predicted students' self-efficacy for providing FCC to persons with ASD and their families. As such, it identifies variables that may be important for understanding how students become interested in eventually working with persons with ASD and their families as professionals in the field, a critical workforce issue. This study expands the existing knowledge base in several ways.

The current study strengthened a measure of ASD knowledge that had been used in previous research (Dinecola, 2012; Dinecola & Lemieux, 2015) by establishing its content validity with a panel of ASD and FCC experts. In an international review of existing ASD knowledge measures, Harrison et al. (2017) reported that researchers typically develop new measures rather than using existing scales, which limits opportunities to establish the psychometric properties of established scales. Consistent with the recommendation of Harrison et al. (2017), the current study incorporated an existing test of ASD knowledge in order to further establish its validity.

An additional contribution of the current study is the inclusion of a measure assessing self-efficacy for providing FCC. Although qualitative research and conceptual literature suggests that professionals who work with children with SHCN (including ASD) lack confidence to address family issues (Iannuzzi et al., 2015; Lotze et al., 2010; Shannon, 2004), no studies to date used a quantitative method to assess respondent's self-efficacy for FCC. The current study incorporated a novel case vignette approach to separately assess students' self-efficacy for providing FCC to both a young child and an emerging adult with ASD. This researcher-developed measure includes practice behaviors that were derived from a valid and reliable scale used widely in the field of SHCN (i.e., MPOC-SP), and the content validity of the scale was established by ASD and FCC experts. However, further psychometric testing is warranted.

A sample sufficiently large enough for multivariate analyses was obtained in the current study. Previous studies that used only bivariate analyses relied on extremely small samples (e.g., n<50; Hauber et al., 2015; Preece & Jordan, 2007; Ruble et al., 2011). Thus, these latter samples had notable limitations with regard to generalizability of findings and statistical power (Rubin & Babbie, 2010).

Studies typically have used samples of professionals with previous experience with ASD (e.g., Christon & Myers, 2015; Corona et al., 2017). As the number of ASD diagnoses increases (CDC, 2018), the likelihood that professionals will encounter a person with ASD in different practice settings also increases, regardless of whether they intend to work with persons with ASD or not. Thus, studies, like the current one, that examine empirically relevant correlates of self-efficacy for FCC practice (i.e., knowledge, attitudes, contact, training) among students, including those with and without experience in the field of ASD, are important in developing instructional strategies that will adequately prepare novice professionals to work with individuals with ASD and their families.

Finally, social workers are underutilized in the field of ASD despite the fact that principles of FCC are consistent with social work curricula. Prior studies of FCC and ASD do not adequately represent social workers (e.g., Christon & Myers, 2015; Corona et al., 2017). The current study is the first known study to examine these constructs using a sample of social work students.

### Implications for Social Work Practice, Education, and Research

As rates of ASD diagnoses continue to increase (CDC, 2018), the need for knowledge competent professionals to provide FCC to persons with ASD and their families is crucial (e.g., Gerhardt & Lainer, 2011; Smith & Anderson, 2014). Using a sample of graduate social work and

special education students, the current study examined predictors self-efficacy for FCC practice. A substantial corpus of research shows that self-efficacy for practice in the field of ASD is empirically linked to career interest and intention, and, ultimately actual practice behaviors (e.g., Dinecola, 2012; Christon & Myers, 2015; Lent & Brown, 1996; Werner & Grayzman, 2011). Differences between social work and special education students were examined to better understand their readiness and preparedness for FCC practice in the field of ASD. Graduate students' self-efficacy for providing FCC to both emerging adults and young children was examined, given that the transition to adulthood is a critical period during which FCC has the potential to be especially beneficial to families (e.g., Smith & Anderson, 2014; Woodman et al., 2015; Woodman et al., 2016). Findings of the current study suggest that there are complex interactions among self-efficacy for professional practice, attitudes toward working with persons with ASD, the receipt of FCC-related training, and other relevant variables. This section discusses implications for social work practice, education, and research.

**Implications for Social Work Practice**

Although relatively few professional social workers identify developmental disabilities as their primary field of practice (Whitaker & Arrington, 2008), in the past decade, social workers have become increasingly involved in the lives of persons with ASD in school, hospital, mental health, and community settings (Dababnah et al., 2011; Iannuzzi et al., 2015; VanBergeijk & Shtayermman, 2005). In addition, research shows that parents of children with ASD want more support from social workers, especially during times of transition (Newsome, 2008). The findings from the current study have important implications for both direct and indirect social work practice.

**Direct practice.** The findings from the current study suggest that social work and special education students bring different strengths and shortcomings to working with persons with ASD and their families. Although no significant difference emerged between social work and special education students' levels of self-efficacy for providing FCC, social work students reported receiving more FCC-related training in their graduate programs than special education students; and special education students reported having more formal coursework, attending more professional workshops, and engaging in more self-directed learning regarding ASD than social work students. Special education students were also more knowledgeable about ASD, held more positive views about ASD, and reported more interactions with persons with ASD. These findings suggest that professionals from different disciplines enter the field of ASD with unique yet complimentary perspectives and training, which indicates the need for interdisciplinary collaboration in FCC practice.

Treatment groups offer a unique opportunity for graduate students and professionals to provide interdisciplinary support for families of persons with ASD. Banach, Iudice, Conway, & Couse (2010) found that a support group, led by a graduate social work student and a graduate early childhood special education student under the supervision of professionals in their respective disciplines, led to increased empowerment in parents of newly diagnosed with ASD. Similarly, the creators of Transitioning Together, a psychoeducation group for adolescents with ASD and their families, suggest utilizing graduate student and professional facilitators from different backgrounds, including social work and special education (Waisman Center, 2015). Research has shown that families who participated in Transitioning Together had improvements in parent knowledge, parent-child relationship, and child behavior (Smith et al., 2012).

**Indirect practice.** The current study highlights the importance of FCC-related training in the formation of graduate students' self-efficacy for providing FCC to persons with ASD and their families. FCC-related training emerged as a significant predictor in the multivariate model for self-efficacy for FCC practice; whereas, no training variables specific to ASD (e.g., coursework, workshops, self-directed training) were associated with self-efficacy for providing FCC to persons with ASD and their families. This suggests that FCC-related training may have a greater impact on students' self-efficacy for FCC practice with persons with ASD than ASD-specific training. Due to this finding, political and financial support for graduate programs focused on FCC-related training in the field of ASD is needed. Social workers should promote policies that support FCC-focused training for working with persons with ASD, such the Autism Collaboration, Accountability, Research, Education, and Support Act of 2014 (Autism CARES Act).

The Autism CARES Act, a reauthorization of the Combating Autism Act of 2006, is a seminal policy related to professional training in the field of ASD and FCC. Autism CARES dedicated $1.3 billion dollars over a 5-year period to ASD research and programs, with special foci on addressing gaps in service delivery for adults and on access to FCC. No other single disorder has received as much targeted assistance from the federal government (Autism Speaks, 2016). Since 2008, over $123 million dollars of funds dedicated by Autism CARES has been used to support over 500 projects focused on ASD. An example of these projects is the training of direct care workers and professionals to support individuals with ASD and their families during the transition to adulthood (Interagency Autism Coordinating Committee, 2014).

The Autism CARES Act also provides funding for Leadership Education in Neurodevelopmental and Related Disabilities (LEND) programs, which are interdisciplinary

training programs associated with state University Centers on Disabilities (Association of State University Centers on Disabilities [AUCD], 2016). These programs prepare students and professionals in the fields of audiology, genetics, medicine, nutrition, public health, occupational therapy, speech-language pathology, physical therapy, special education, and social work for FCC practice with persons with ASD and their families (AUCD, 2016). Although only 7% of LEND trainees are from the social work discipline (AUCD, 2016), LEND programs serve as field practicum sites for many graduate social work students across the country (e.g., LEND Boston, 2018; University of Washington LEND, 2017; Wisconsin LEND Program, 2018).

A proposed federal budget threatens to cut these programs for FY 2019 (AUCD, 2018). Social workers need to advocate for continued federal support of Autism CARES and for an increase in LEND programs across the country that provide training opportunities for social work students and professionals.

**Implications for Social Work Education**

The current study showed that graduate social work and special education students have relatively low levels of knowledge about ASD, overall, and in the areas of evidence-based practices and diagnostic criteria, in particular. Also, despite these low levels of knowledge, students still reported relatively high levels of self-efficacy for both general professional practice and FCC-specific practice with persons with ASD. Dinecola and Lemieux (2015) found similar results, with graduate social workers reporting low levels of knowledge, especially in the area of evidence-based practices, and moderate levels of self-efficacy for working with persons with ASD. This suggests that social work students may be entering the workforce ill prepared to advocate for and to provide evidence-based interventions to individuals with ASD and their families.

The current study found that self-efficacy for professional practice and attitudes toward working with persons with ASD were significant predictors of providing FCC to persons with ASD and their families. Further, attitudes were significantly, albeit weakly, correlated with contact, formal coursework, and methods and duration of self-directed learning. Self-efficacy for professional practice was related to attitudes and, interestingly, FCC-related training. Additionally, self-efficacy for providing FCC to persons with ASD was directly related to both methods and duration of self-directed learning, even more so than formal coursework. These findings suggest that social work educators have the opportunity to enhance students' attitudes toward working with ASD and self-efficacy for professional practice through providing opportunities for more contact, formal coursework, self-directed learning, and FCC-related training. These training experiences may ultimately increase students' self-efficacy for providing FCC to persons with ASD and their families.

These findings of the current study indicate numerous implications for social work education. Incorporating course content and field experiences related to providing FCC to persons with ASD and their families in MSW programs is appropriate because it allows students opportunities for growth in each of the nine competency areas specified by CSWE's (2015) EPAS. Social work programs should map the principles of FCC to EPAS standards. Schools of social work could encourage students to engage in self-directed learning by offering independent study credit related to ASD. Infusing content related to ASD in core coursework (e.g., Human and Behavior for the Social Environment, Diversity, Practice) classes and offering specialized elective courses in DD may also ultimately promote more positive attitudes and higher levels of self-efficacy among graduate social work students (Dinecola & Lemieux, 2015; Laws et al., 2010). The most obvious way to increase opportunities for contact with persons with ASD would

be to increase the availability of formal field experiences that expose students to individuals with ASD (Dinecola & Lemeiux, 2015; Laws et al., 2010). Also, providing stipends for internships in the field of DD and ASD may entice students to explore working with this vulnerable population (Dinecola & Lemeiux, 2015). However, there are ethical issues to consider when providing incentives to students for working with certain populations because the practice may contribute to stigmatization. In addition to field placements, service-learning classes, guest speakers, and other experiential types of learning may be valuable instructional methods for increasing students' interactions with persons with ASD (Dinecola & Lemeiux, 2015).

**Implications for Social Work Research**

The findings and limitations of the current study offer implications for future social work research. Three significant predictors of self-efficacy for providing FCC to persons with ASD and their families emerged in the multivariate model: self-efficacy for professional practice, attitudes toward working with persons with ASD, and FCC-related training. Weak bivariate correlations emerged between attitudes and discipline and knowledge. Discipline, credit hours, and contact were significant, albeit weak, bivariate correlates of FCC-related training. Given these complex interactions, more studies with large sample sizes to accommodate sophisticated data analysis methods, such as path analysis and structural equation modeling, are needed to further understand the relationships among self-efficacy for professional practice, FCC-related training, self-efficacy for FCC practice with persons with ASD, and other relevant constructs. The multivariate model in the current study did not include all possible predictors of self-efficacy for providing FCC. Thus, future studies should also specify models that account for more and varied predictors of self-efficacy for providing FCC, such as vicarious experience (e.g., Bandura, 1997) and personality factors (e.g., Stajkovic et al., 2018). Because FCC-related training

emerged as a significant predictor of self-efficacy for FCC practice, intervention research using quasi-experimental and experimental designs is warranted to evaluate the effects of training types and dosage. Additionally, longitudinal studies would provide more information about the development and trajectory of students' self-efficacy for providing FCC to persons with ASD and their families over time.

The current study was the first to date to incorporate case studies in a measure of self-efficacy for practice, and most of the instruments used were also researcher-developed. The internal consistency and construct validity of these researcher-developed measures were deemed acceptable for the present study; however, future psychometric testing is warranted to establish the reliability and validity with diverse student and practitioner sample populations. For example, future studies should assess the convergent validity of the self-efficacy instruments by incorporating comparable measures of self-efficacy with established reliability and validity as comparisons (Rubin & Babbie, 2010). An example of a self-efficacy scale that could be included in future research is the ASSET (Ruble et al., 2013), which was used by Corona et al. (2017) to assess school professionals' self-efficacy for teaching students with ASD.

## Conclusion

The current study found that self-efficacy for professional practice, attitudes toward working with persons with ASD, and FCC-related training were significant predictors of graduate social work and special education students' self-efficacy for providing FCC to persons with ASD and their families. Significant differences between social work and special education students on key training variables indicate that each discipline offers slightly different yet complimentary approaches to working with persons with ASD and their families, indicating a need for FCC-focused, interdisciplinary training and collaboration in the field of ASD. Young

childhood and emerging adulthood are critical developmental periods for families of persons with ASD, and the findings of the current study suggest that graduate students are equally confident in their abilities to work with persons with ASD and their families at both of these times of transition. Future research should continue to examine the complex interrelationships among discipline of study, self-efficacy for general and FCC-specific practice, attitudes, contact, training, and other relevant variables using more sophisticated methods of analyses, such as structural equation modeling, with larger and more representative samples. The findings of the current study have significant implications for social work direct and indirect practice, education, and research.

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# APPENDIX A. IRB EXEMPTION APPROVAL

**ACTION ON EXEMPTION APPROVAL REQUEST**

Institutional Review Board
Dr. Dennis Landin, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu
lsu.edu/research

**TO:** Cassie Dinecola
Social Work

**FROM:** Dennis Landin
Chair, Institutional Review Board

**DATE:** October 17, 2017

**RE:** **IRB#** E10685

**TITLE:** Graduate Students' Self-Efficacy for Working with Persons with Autism Spectrum Disorder and Their Families

**New Protocol/Modification/Continuation:** New Protocol

**Review Date:** 10/17/2017

**Approved** X **Disapproved**_____

**Approval Date:** 10/17/2017 **Approval Expiration Date:** 10/16/2020

**Exemption Category/Paragraph:** 2a

**Signed Consent Waived?:** Yes

**Re-review frequency:** (three years unless otherwise stated)

**LSU Proposal Number** (if applicable):

**Protocol Matches Scope of Work in Grant proposal:** (if applicable)

**By**: Dennis Landin, Chairman _____

**PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –**
**Continuing approval is CONDITIONAL on:**

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. **SPECIAL NOTE: When emailing more than one recipient, make sure you use bcc. Approvals will automatically be closed by the IRB on the expiration date unless the PI requests a continuation.**

* *All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb*

# APPENDIX B. SOCIAL WORK SURVEY INSTRUMENT



## GRADUATE STUDENTS' SELF-EFFICACY FOR WORKING WITH PERSONS WITH AUTISM SPECTRUM DISORDER AND THEIR FAMILIES

This anonymous survey collects information from graduate social work and special education students at 4 universities in Louisiana. This survey asks about your knowledge about, attitudes toward, and self-efficacy for working with persons with autism spectrum disorder (ASD) and their families, and it should not take more than 15-20 minutes to complete. Participation is completely voluntary. There are no risks to taking this survey, and at any time you may choose to not complete it without any penalties. For participating, you will receive a raffle ticket for one of 25 $10 amazon.com gift cards. Results of this study will be used for a doctoral dissertation and may be published, but no identifying information will be used. The researcher, Cassie Dinecola may be reached at cdinec2@lsu.edu, or her advisor Dr. Catherine Lemieux at clemeiu@lsu.edu, should you have any questions regarding this study. Questions can also be directed to Dr. Dennis Landin, Director of LSU's Institutional Review Board at 225-578-8692. ***By completing the survey below, I am indicating my consent to participate in the research study Graduate Students' Self-Efficacy for Working With Persons with Autism Spectrum Disorder (ASD) and Their Families.***

**This survey consists of 7 sections and 98 questions.**
**Please read the instructions before each section carefully.**

**I. Knowledge about ASD**

*The 15 true-false questions in this section are designed to test your knowledge about ASD. Please read each question in its entirety very carefully, and then circle your answer to each statement. Please DO NOT refer to any outside materials (e.g., Internet, textbooks, friends, etc.) to aid you in completing this section.*

| | | | |
|---|---|---|---|
| **1.** All children with ASD display atypical eye contact. | **True** | **False** | **Don't Know** |
| **2.** Individuals with ASD typically perform better when tasks are presented visually than when tasks are presented verbally. | **True** | **False** | **Don't Know** |
| **3.** Children must exhibit impaired social communication and interaction to receive a diagnosis of ASD. | **True** | **False** | **Don't Know** |
| **4.** ASD is more frequently diagnosed in males than in females. | **True** | **False** | **Don't Know** |
| **5.** Children must exhibit behaviors or interests that are restrictive, repetitive and stereotyped to receive a diagnosis of ASD. | **True** | **False** | **Don't Know** |
| **6.** ASD can be cured with proper treatment. | **True** | **False** | **Don't Know** |
| **7.** ASD can be diagnosed as early as 18 months. | **True** | **False** | **Don't Know** |
| **8.** Children must exhibit self-injurious behavior to receive a diagnosis of ASD. | **True** | **False** | **Don't Know** |
| **9.** Most individuals with ASD never develop speech. | **True** | **False** | **Don't Know** |

***Please turn to next page to continue survey.***

| ***Secretin* is a hormone used in the digestive process of humans.** | | | |
|---|---|---|---|
| **10.** Injection of the hormone *secretin* in the stomach is a validated medical treatment for ASD. | **True** | **False** | **Don't Know** |
| **11.** Most children with ASD have an accompanying intellectual disability. | **True** | **False** | **Don't Know** |
| **12.** Individuals with ASD frequently have savant characteristics (e.g. special talents or abilities. | **True** | **False** | **Don't Know** |
| **13.** Most research-supported treatments involve intensive behavioral methods (e.g., Applied Behavior Analysis and Discrete Trial Training). | **True** | **False** | **Don't Know** |
| **14.** Many individuals with ASD experience gastrointestinal difficulties (e.g., chronic constipation, diarrhea, and abdominal pain). . | **True** | **False** | **Don't Know** |
| **15.** Epilepsy (seizure disorder) is a common co-occurring condition for individuals with ASD. | **True** | **False** | **Don't Know** |

**II. Working with Persons with ASD**

*This section asks 10 questions about working with persons with ASD. There are no right or wrong answers. For each sentence, please circle the number that shows how much you agree with the sentence, where 1 = strongly disagree and 6 = strongly agree.*

| | ***Please circle the number below that best represents your response.*** | | | | | | |
|---|---|---|---|---|---|---|---|
| **16.** Working with individuals with ASD would be depressing. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **17.** Working with individuals with ASD is important to society. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **18.** A job working with individuals with ASD would be financially rewarding. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **19.** I would have concern for my physical safety if working with an individual with ASD. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **20.** Working with individuals with ASD deals with issues that make me uncomfortable. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **21.** Working with individuals with ASD is appealing due to my personal experiences with services. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **22.** Working with individuals with ASD would be too demanding. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |

***Please turn to next page to continue survey.***

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **23.** Working with individuals with ASD would offer opportunities for personal growth. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **24.** There is little hope of effecting change in individuals with ASD. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **25.** Working with individuals with ASD would offer opportunities to develop important skills as a social worker. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **26.** Working with individuals with ASD would offer opportunities for career advancement. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |

**III. Types of Contact with Persons with ASD**

*This section asks questions about your personal, volunteer, field, and work experience and interactions with individuals with ASD. Please check (√) the responses that apply to you.*

**27**. Have you ever worked with an individual with ASD in a field experience (i.e., practicum, internship, student teaching) required for your graduate program?

**_____ Yes _____ No _____ Don't Know**

**28.** Have you ever worked with an individual with ASD as a paid professional or paraprofessional, not including volunteer or field experiences?

**_____ Yes _____ No _____ Don't Know**

**29.** Have you ever interacted with an individual with ASD as an unpaid volunteer?

**_____ Yes _____ No _____ Don't Know**

**30.** Have you ever interacted with an individual with ASD in your personal life (e.g. friends, family members)?

**_____ Yes _____ No _____ Don't Know**

**IV. Training on ASD and Family Centered-Care**

*This section asks about any training you have received specifically addressing either the diagnosis of ASD or persons affected by ASD*

**31.** Please place a check (√) mark next to all of the following methods of instruction in which you received information about ASD in any of your graduate-level social work courses.

_____ **Lecture presented by professor**
_____ **Presentation by classmates**
_____ **Group project**
_____ **Assigned readings**
_____ **Course assignments (excluding group projects and assigned readings)**
_____ **Guest speaker**
_____ **Use of media (e.g. video, audio, etc.)**
_____ **Other (please specify) _____**

***Please turn to next page to continue survey.***

**32.** How many workshops and conferences have you attended that primarily focused on either the diagnosis of ASD or persons affected by ASD? *Please write your answer, in numerical form here:* _____

**33.** Please place a check (√) mark next to all of the following methods of self-directed research focused on either the diagnosis of ASD or persons affected by ASD you have engaged in:

_____ **Searching for resources and information on websites**
_____ **Searching for resources and information at a physical library**
_____ **Reading magazine and news articles**
_____ **Reading peer-reviewed journal articles**
_____ **Watching webinars and videos online**
_____ **Watching documentaries**
_____ **Other (please specify)** _____

**34.** Approximately how many hours of self-directed research focused on either the diagnosis of ASD or persons affected by ASD have you engaged in? Examples include reading news articles/magazine, searching websites, watching documentaries, etc. *Please write your answer, in numerical form here:* _____

**35-46.** The following set of questions is concerned with the extent to which you have received different types of information (e.g., lectures, readings, and other methods of instruction) about working with children and families in your graduate program. This does not need to be specific to families affected by ASD, but just information about children and families in general. There are no right or wrong answers. *For each question, please circle the number that indicates the extent to which you received that particular information, where 1 = not at all and 6 = very much.*

| **In your graduate program, to what extent have you received information about:** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **35.** Acknowledging the family as a constant in a child's life? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **36.** Building on family strengths? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **37.** Supporting the child in learning about and participating in his or her own care and decision-making? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **38.** Honoring cultural diversity and family traditions? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **39.** Recognizing the importance of community-based services? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **40.** Promoting an individual and developmental approach? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |

***Please turn to the next page to continue the survey.***

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **41.** Encouraging family-to-family and peer support? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **42.** Supporting youth as they transition to adulthood? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **43.** Developing policies that are family-friendly and family-centered | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **44.** Developing practices, and systems that are family-friendly and family-centered ? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **45.** Developing systems that are family-friendly and family-centered ? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **46.** Celebrating the successes and progress of children and their families? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |

**Section V. Self-Efficacy for Professional Practice**

*The questions in this section are designed to assess your level of confidence performing specific tasks in your practice as a social worker. For each statement, circle the number that corresponds with how confident you would be completing this particular task, where 1 = not confident at all and 6 = very confident*

**47.-60.** In your future social work practice, how confident are you in your ability to:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **47.** demonstrate ethical and professional behavior? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **48.** engage in diversity and difference in practice? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **49.** advance human rights and social, economic, and environmental justice? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **50.** engage in practice-informed research? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **51.** engage in research-informed practice? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **52.** engage in policy practice? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **53.** engage with individuals? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |

***Please turn to the next page to continue the survey.***

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **54.** assess individuals? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **55.** intervene with individuals? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **56.** evaluate your practice with individuals? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **57.** engage with families? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **58.** assess families? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **59.** intervene with families? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **60.** evaluate your practice with families? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |

**Section VI. Self-Efficacy for Working with Persons with ASD and their Families**

*The questions in this section are designed to assess your level of confidence performing specific tasks when working with persons with ASD and their families. This section introduces you to two completely fictitious clients, Jamal and Connor. Please read each case vignette below and imagine that you are working with this individual and family. For each statement, circle the number that corresponds with how confident you would be completing this particular task, where 1 = not confident at all and 6 = very confident.*

**CASE VIGNETTE #1**

**Jamal is a nineteen-year-old young man with ASD currently attending a community-based, non-diploma track program at his high school. Jamal attends PE and English classes in a general classroom. For the remainder of his school day, he is taught in a segregated classroom and then volunteers at a thrift store for vocational training. Although he interacts with his peers at school, he rarely is invited to social gatherings. Jamal spends most of his free time drawing replicas of Disney characters. Jamal wishes to be a cartoon artist at his local newspaper after high school. Jamal's parents, Mr. and Mrs. Coleman, are concerned that this goal is not realistic. Jamal is in his 4th year of high school and expects to graduate with his peers, even though he is entitled to 2 more years of high school as a student with a disability. In terms of the family, Jamal is an only child. His mother, Mrs. Coleman, does not work outside the home in order to care for Jamal and address his multiple needs (e.g., refilling and managing prescriptions, managing calendar of therapy appointments, driving Jamal to and from various therapy appointments and services, etc.). Jamal's father, Mr. Coleman, has a job that requires frequent out-of-town travel. The Coleman family depends on this employment for health insurance that covers the costs of Jamal's therapies. Mr. and Mrs. Coleman are concerned that when Jamal leaves school he will be isolated at home with few daily activities, but they also want to respect his wishes to be a "normal" young adult.**

***Please turn to the next page to continue the survey.***

**61.-75. Imagine you are working with Jamal and his family.** How confident would you be in your ability to:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **61.** Suggest treatment activities that fit with the Coleman family's needs and lifestyle? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **62.** Offer Jamal and his parents positive feedback or encouragement? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **63.** Take time to establish rapport with Jamal and his parents? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **64.** Discuss expectations for Jamal with other service providers, to ensure consistency of thought and action? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **65.** Tell Mr. and Mrs. Coleman about options for services and treatments for Jamal? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **66.** Accept Mr. and Mrs. Coleman and Jamal in a non-judgmental way? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **67.** Trust Mr. and Mrs. Coleman as "experts" on Jamal? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **68.** Make sure Mr. and Mrs. Coleman had a chance to say what was important to them? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **69.** Treat Mr. and Mrs. Coleman as equals rather than just a parent of a student or client? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **70.** Tell Mr. and Mrs. Coleman the results from tests/or assessments? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **71.** Provide Mr. and Mrs. Coleman with written information about their child's condition, progress, or treatment? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **72.** Tell Mr. and Mrs. Coleman details about Jamal's services, such as the types and reasons for treatment? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **73.** Promote family-to-family "connections" for social, informational, or shared experiences? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **74.** Provide support to help Mr. and Mrs. Coleman cope with Jamal's chronic condition? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **75.** Have general information available about different concerns? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |

***Please turn to the next page to continue the survey.***

**CASE VIGNETTE #2**

**Connor is a five-year-old boy with ASD currently attending a general education kindergarten classroom. Connor's parents, Mr. and Mrs. Hoffman, have difficulty getting Connor ready for school. When Connor is supposed to be getting ready for school, he becomes distracted and reads books on trains or airplanes. When his parents attempt to redirect him, he verbally refuses. On several occasions, Connor's behavior has escalated to screaming at and hitting his parents. Connor is often groggy in the morning due to side effects of medications he is prescribed to help manage this aggressive behavior. Connor has two older siblings—a six-year-old sister Sarah and an eight-year-old brother John. Connor's difficulties in the morning have resulted in all three children running late for school on multiple occasions. Mr. and Mrs. Hoffman report feeling worried that Connor's aggressive behavior scares his siblings.**

**76.-90. Imagine you are working with Connor and his family.** How confident would you be in your ability to:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **76.** Tell Mr. and Mrs. Hoffman about options for services or treatments Connor? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **77.** Discuss or explore Mr. and Mrs. Hoffman's feelings about having a child with ASD? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **78.** Anticipate Mr. and Mrs. Hoffman's concerns by offering information even before they ask? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **79.** Let Mr. and Mrs. Hoffman choose when to receive information and what type of information they wanted? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **80.** Help the Hoffman family to secure a stable relationship with at least one service provider who works with Connor and his parents over a long period of time? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **81.** Tell Mr. and Mrs. Hoffman about the results from tests and/or assessments? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **82.** Provide Mr. and Mrs. Hoffman with written information about their child's condition, progress, or treatment? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **83.**Tell Mr. and Mrs. Hoffman details about their child's services, such as types, reasons for, and durations of treatment? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **84.** Treat Mr. and Mrs. Hoffman each as an individual rather than as a "typical" parent of a child with a "problem? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |

***Please turn to the next page to continue the survey.***

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **85.** Answer Mr. and Mrs. Hoffman's questions completely? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **86.** Make sure Mr. and Mrs. Hoffman had opportunities to explain their treatment goals and needs? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **87.** Help Mr. and Mrs. Hoffman feel competent in their role as parents? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **88.** Help Mr. and Mrs. Hoffman feel like a partner in their child's care? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **89.** Provide advice on how to get information or to contact other parents? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **90.** Provide opportunities for the entire Hoffman family, including siblings, to obtain information? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |

**Section VII. Demographics**
*This section asks for demographic and education information.*

**91.** Are you in a specialized concentration or certificate program for your degree (e.g., gerontology, child welfare, etc.)?
**_____No**
**_____Yes (please specify) _____**

**92.** What university do you attend? _____

**93.** As of today, how many credit hours have you *completed* for your degree program? _____

**94.** What number of credit hours are you *currently enrolled* in for your degree program? _____

**95.** How old are you today? _____

**96.** Please circle your gender: **Male** **Female** **Transgender** **Other**

**97.** Are you of Hispanic, Latino, or Spanish origin?
**_____No, not of Hispanic, Latino, or Spanish origin**
**_____Yes, Mexican, Mexican American, Chicano**
**_____Yes, Puerto Rican**
**_____Yes, Cuban**
**_____Yes, another Hispanic, Latino, or Spanish origin—please print origin:_____**

***Please turn to the next page to continue the survey.***

**98.** What is your race? Please check one or more.

**_____White/ Caucasian**
**_____Black/African American**
**_____American Indian or Alaskan Native—please provide tribe name: _____**

| | | |
|---|---|---|
| **_____Asian Indian** | **_____Japanese** | **_____Native Hawaiian** |
| **_____Chinese** | **_____Korean** | **_____Guamanian or Chamorro** |
| **_____Filipino** | **_____ Vietnamese** | **_____Samoan** |

**_____Other- please specify: _____**

Please take a moment to review your survey to ensure that it is complete.

***Thank you for participating in this survey!!!!***

***Please return your survey to your instructor or Cassie Dinecola.***

# APPENDIX C. SPECIAL EDUCATION SURVEY INSTRUMENT



## GRADUATE STUDENTS' SELF-EFFICACY FOR WORKING WITH PERSONS WITH AUTISM SPECTRUM DISORDER AND THEIR FAMILIES

This anonymous survey collects information from graduate social work and special education students at 4 universities in Louisiana. This survey asks about your knowledge about, attitudes toward, and self-efficacy for working with persons with autism spectrum disorder (ASD) and their families, and it should not take more than 15-20 minutes to complete. Participation is completely voluntary. There are no risks to taking this survey, and at any time you may choose to not complete it without any penalties. For participating, you will receive a raffle ticket for one of 25 $10 amazon.com gift cards. Results of this study will be used for a doctoral dissertation and may be published, but no identifying information will be used. The researcher, Cassie Dinecola may be reached at cdinec2@lsu.edu, or her advisor Dr. Catherine Lemieux at clemeiu@lsu.edu, should you have any questions regarding this study. Questions can also be directed to Dr. Dennis Landin, Director of LSU's Institutional Review Board at 225-578-8692. ***By completing the survey below, I am indicating my consent to participate in the research study Graduate Students' Self-Efficacy for Working With Persons with Autism Spectrum Disorder (ASD) and Their Families.***

**This survey consists of 7 sections and 96 questions.**
**Please read the instructions before each section carefully.**

**I. Knowledge about ASD**

*The 15 true-false questions in this section are designed to test your knowledge about ASD. Please read each question in its entirety very carefully, and then circle your answer to each statement. Please DO NOT refer to any outside materials (e.g., Internet, textbooks, friends, etc.) to aid you in completing this section.*

| | | | |
|---|---|---|---|
| **1.** All children with ASD display atypical eye contact. | **True** | **False** | **Don't Know** |
| **2.** Individuals with ASD typically perform better when tasks are presented visually than when tasks are presented verbally. | **True** | **False** | **Don't Know** |
| **3.** Children must exhibit impaired social communication and interaction to receive a diagnosis of ASD. | **True** | **False** | **Don't Know** |
| **4.** ASD is more frequently diagnosed in males than in females. | **True** | **False** | **Don't Know** |
| **5.** Children must exhibit behaviors or interests that are restrictive, repetitive and stereotyped to receive a diagnosis of ASD. | **True** | **False** | **Don't Know** |
| **6.** ASD can be cured with proper treatment. | **True** | **False** | **Don't Know** |
| **7.** ASD can be diagnosed as early as 18 months. | **True** | **False** | **Don't Know** |
| **8.** Children must exhibit self-injurious behavior to receive a diagnosis of ASD. | **True** | **False** | **Don't Know** |
| **9.** Most individuals with ASD never develop speech. | **True** | **False** | **Don't Know** |

***Please turn to next page to continue survey.***

| ***Secretin* is a hormone used in the digestive process of humans.** | | | |
|---|---|---|---|
| **10.** Injection of the hormone *secretin* in the stomach is a validated medical treatment for ASD. | **True** | **False** | **Don't Know** |
| **11.** Most children with ASD have an accompanying intellectual disability. | **True** | **False** | **Don't Know** |
| **12.** Individuals with ASD frequently have savant characteristics (e.g. special talents or abilities. | **True** | **False** | **Don't Know** |
| **13.** Most research-supported treatments involve intensive behavioral methods (e.g., Applied Behavior Analysis and Discrete Trial Training). | **True** | **False** | **Don't Know** |
| **14.** Many individuals with ASD experience gastrointestinal difficulties (e.g., chronic constipation, diarrhea, and abdominal pain). . | **True** | **False** | **Don't Know** |
| **15.** Epilepsy (seizure disorder) is a common co-occurring condition for individuals with ASD. | **True** | **False** | **Don't Know** |

**II. Working with Persons with ASD**

*This section asks 11 questions about working with persons with ASD. There are no right or wrong answers. For each sentence, please circle the number that shows how much you agree with the sentence, where 1 = strongly disagree and 6 = strongly agree.*

| | ***Please circle the number below that best represents your response.*** | | | | | | |
|---|---|---|---|---|---|---|---|
| **16.** Working with individuals with ASD would be depressing. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **17.** Working with individuals with ASD is important to society. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **18.** A job working with individuals with ASD would be financially rewarding. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **19.** I would have concern for my physical safety if working with an individual with ASD. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **20.** Working with individuals with ASD deals with issues that make me uncomfortable. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **21.** Working with individuals with ASD is appealing due to my personal experiences with services. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **22.** Working with individuals with ASD would be too demanding. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |

***Please turn to next page to continue survey.***

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **23.** Working with individuals with ASD would offer opportunities for personal growth. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **24.** There is little hope of effecting change in individuals with ASD. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **25.** Working with individuals with ASD would offer opportunities to develop important skills as a special educator. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |
| **26.** Working with individuals with ASD would offer opportunities for career advancement. | **Strongly disagree** | **1** | **2** | **3** | **4** | **5** | **6** | **Strongly agree** |

**III. Types of Contact with Persons with ASD**

*This section asks questions about your personal, volunteer, field, and work experience and interactions with individuals with ASD.*

**27**. Have you ever worked with an individual with ASD in a field experience (i.e., practicum, internship, student teaching) required for your graduate program?

**_____ Yes _____ No _____ Don't Know**

**28.** Have you ever worked with an individual with ASD as a paid professional or paraprofessional, not including volunteer or field experiences?

**_____ Yes _____ No _____ Don't Know**

**29.** Have you ever interacted with an individual with ASD as an unpaid volunteer?

**_____ Yes _____ No _____ Don't Know**

**30.** Have you ever interacted with an individual with ASD in your personal life (e.g. friends, family members)?

**_____ Yes _____ No _____ Don't Know**

**IV. Training on ASD and Family Centered-Care**

*This section asks about any training you have received specifically addressing either the diagnosis of ASD or persons affected by ASD and their families.*

**31.** Please place a check (√) mark next to all of the following methods of instruction in which you received information about ASD in any of your graduate-level special education courses.

**_____ Lecture presented by professor**
**_____ Presentation by classmates**
**_____ Group project**
**_____ Assigned readings**
**_____ Course assignments (excluding group projects and assigned readings)**
**_____ Guest speaker**
**_____ Use of media (e.g. video, audio, etc.)**
**_____ Other (please specify) _____**

***Please turn to next page to continue survey.***

**32.** How many workshops and conferences have you attended that primarily focused on either the diagnosis of ASD or persons affected by ASD? *Please write your answer, in numerical form here:* _____

**33.** Please place a check (√) mark next to all of the following methods of self-directed research focused on either the diagnosis of ASD or persons affected by ASD you have engaged in:

_____ **Searching for resources and information on websites**
_____ **Searching for resources and information at a physical library**
_____ **Reading magazine and news articles**
_____ **Reading peer-reviewed journal articles**
_____ **Watching webinars and videos online**
_____ **Watching documentaries**
_____ **Other (please specify)** _____

**34.** Approximately how many hours of self-directed research focused on either the diagnosis of ASD or persons affected by ASD have you engaged in? Examples include reading news articles/magazine, searching websites, watching documentaries, etc. *Please write your answer, in numerical form here:* _____

**35-46.** The following set of questions is concerned with the extent to which you have received different types of information (e.g., lectures, readings, and other methods of instruction) about working with children and families in your graduate program. This does not need to be specific to families affected by ASD, but just information about children and families in general. There are no right or wrong answers. *For each question, please circle the number that indicates the extent to which you received that particular information, where 1 = not at all and 6 = very much.*

| **In your graduate program, to what extent have you received information about:** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **35.** Acknowledging the family as a constant in a child's life? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **36.** Building on family strengths? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **37.** Supporting the child in learning about and participating in his or her own care and decision-making? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **38.** Honoring cultural diversity and family traditions? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **39.** Recognizing the importance of community-based services? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **40.** Promoting an individual and developmental approach? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |

***Please turn to the next page to continue the survey.***

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **41.** Encouraging family-to-family and peer support? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **42.** Supporting youth as they transition to adulthood? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **43.** Developing policies that are family-friendly and family-centered | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **44.** Developing practices that are family-friendly and family-centered ? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **45.** Developing systems that are family-friendly and family-centered ? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |
| **46.** Celebrating the successes and progress of children and their families? | **Not at all** | **1** | **2** | **3** | **4** | **5** | **6** | **Very much** |

**Section V. Self-Efficacy for Professional Practice**

*The questions in this section are designed to assess your level of confidence performing specific tasks in your practice as a professional. For each statement, circle the number that corresponds with how confident you would be completing this particular task, where 1 = not confident at all and 6 = very confident*

**47.-58.** In your future special education practice, how confident are you in your ability to:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **47.** use valid and reliable assessment practices? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **48.** evaluate the effectiveness of practice and programs? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **49.** provide access to challenging curriculum to meet the needs of individuals with exceptionalities? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **50.** use understanding of diversity and individual learning differences to inform your work with individuals with exceptionalities? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **51.** to advocate for programs, supports, and services for individuals with exceptionalities? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **52.** use technologies to improve programs, supports, and services for individuals with exceptionalities? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |

***Please turn to the next page to continue the survey.***

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **53.** use research skills to identify effective practices? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **54.** use your knowledge of the professional literature to improve practices with individuals with exceptionalities and their families? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **55.** model respect and ethical practice for all individuals with exceptionalities? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **56.** support and use linguistically and culturally responsive practices? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **57.** create and maintain collegial and productive work environments that respect and safeguard the rights of individuals with exceptionalities and their families? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **58.** actively participate in professional development opportunities increase professional knowledge and expertise? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |

**Section VI. Self-Efficacy for Working with Persons with ASD and their Families**

*The questions in this section are designed to assess your level of confidence performing specific tasks when working with persons with ASD and their families. This section introduces you to two completely fictitious clients, Jamal and Connor. Please read each case vignette below and imagine that you are working with this individual and family. For each statement, circle the number that corresponds with how confident you would be completing this particular task, where 1 = not confident at all and 6 = very confident.*

**CASE VIGNETTE #1**

**Jamal is a nineteen-year-old young man with ASD currently attending a community-based, non-diploma track program at his high school. Jamal attends PE and English classes in a general classroom. For the remainder of his school day, he is taught in a segregated classroom and then volunteers at a thrift store for vocational training. Although he interacts with his peers at school, he rarely is invited to social gatherings. Jamal spends most of his free time drawing replicas of Disney characters. Jamal wishes to be a cartoon artist at his local newspaper after high school. Jamal's parents, Mr. and Mrs. Coleman, are concerned that this goal is not realistic. Jamal is in his 4th year of high school and expects to graduate with his peers, even though he is entitled to 2 more years of high school as a student with a disability. In terms of the family, Jamal is an only child. His mother, Mrs. Coleman, does not work outside the home in order to care for Jamal and address his multiple needs (e.g., refilling and managing prescriptions, managing calendar of therapy appointments, etc.). Jamal's father, Mr. Coleman, has a job that requires frequent out-of-town travel. The Coleman family depends on this employment for health insurance that covers the costs of Jamal's therapies. Mr. and Mrs. Coleman are concerned that when Jamal leaves school he will be isolated at home with few daily activities, but they also want to respect his wishes to be a "normal" young adult.**

***Please turn to the next page to continue the survey.***

**59.-75. Imagine you are working with Jamal and his family.** How confident would you be in your ability to:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **59.** Suggest treatment activities that fit with the Coleman family's needs and lifestyle? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **60.** Offer Jamal and his parents positive feedback or encouragement? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **61.** Take time to establish rapport with Jamal and his parents? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **62.** Discuss expectations for Jamal with other service providers, to ensure consistency of thought and action? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **63.** Tell Mr. and Mrs. Coleman about options for services and treatments for Jamal? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **64.** Accept Mr. and Mrs. Coleman and Jamal in a non-judgmental way? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **65.** Trust Mr. and Mrs. Coleman as "experts" on Jamal? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **66.** Make sure Mr. and Mrs. Coleman had a chance to say what was important to them? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **67.** Treat Mr. and Mrs. Coleman as equals rather than just a parent of a student or client? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **68.** Tell Mr. and Mrs. Coleman the results from tests/or assessments? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **69.** Provide Mr. and Mrs. Coleman with written information about their child's condition, progress, or treatment? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **70.** Tell Mr. and Mrs. Coleman details about Jamal's services, such as the types and reasons for treatment? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **71.** Promote family-to-family "connections" for social, informational, or shared experiences? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **72.** Provide support to help Mr. and Mrs. Coleman cope with Jamal's chronic condition? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **73.** Have general information available about different concerns? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |

***Please turn to the next page to continue the survey.***

**CASE VIGNETTE #2**

**Connor is a five-year-old boy with ASD currently attending a general education kindergarten classroom. Connor's parents, Mr. and Mrs. Hoffman, have difficulty getting Connor ready for school. When Connor is supposed to be getting ready for school, he becomes distracted and reads books on trains or airplanes. When his parents attempt to redirect him, he verbally refuses. On several occasions, Connor's behavior has escalated to screaming at and hitting his parents. Connor is often groggy in the morning due to side effects of medications he is prescribed to help manage this aggressive behavior. Connor has two older siblings—a six-year-old sister Sarah and an eight-year-old brother John. Connor's difficulties in the morning have resulted in all three children running late for school on multiple occasions. Mr. and Mrs. Hoffman report feeling worried that Connor's aggressive behavior scares his siblings.**

**74-89. Imagine you are working with Connor and his family.** How confident would you be in your ability to:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **74.** Tell Mr. and Mrs. Hoffman about options for services or treatments Connor? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **75.** Discuss or explore Mr. and Mrs. Hoffman's feelings about having a child with ASD? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **76.** Anticipate Mr. and Mrs. Hoffman's concerns by offering information even before they ask? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **77.** Let Mr. and Mrs. Hoffman choose when to receive information and what type of information they wanted? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **78.** Help the Hoffman family to secure a stable relationship with at least one service provider who works with Connor and his parents over a long period of time? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **79.** Tell Mr. and Mrs. Hoffman about the results from tests and/or assessments? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **80.** Provide Mr. and Mrs. Hoffman with written information about their child's condition, progress, or treatment? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **81.**Tell Mr. and Mrs. Hoffman details about their child's services, such as types, reasons for, and durations of treatment? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **82.** Treat Mr. and Mrs. Hoffman each as an individual rather than as a "typical" parent of a child with a "problem? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |

***Please turn to the next page to continue the survey.***

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **83.** Answer Mr. and Mrs. Hoffman's questions completely? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **84.** Make sure Mr. and Mrs. Hoffman had opportunities to explain their treatment goals and needs? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **85.** Help Mr. and Mrs. Hoffman feel competent in their role as parents? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **86.** Help Mr. and Mrs. Hoffman feel like a partner in their child's care? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **87.** Provide advice on how to get information or to contact other parents? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |
| **88.** Provide opportunities for the entire Hoffman family, including siblings, to obtain information? | **Not confident** | **1** | **2** | **3** | **4** | **5** | **6** | **Very confident** |

**Section VII. Demographics**
*This section asks for demographic and education information.*

**89.** Are you in a specialized concentration or certificate program for your degree (e.g., gerontology, child welfare, etc.)?
**_____No**
**_____Yes (please specify) _____**

**90.** What university do you attend? _____

**91.** As of today, how many credit hours have you *completed* for your degree program? _____

**92.** What number of credit hours are you *currently enrolled* in for your degree program? _____

**93.** How old are you today? _____

**94.** Please circle your gender: **Male** **Female** **Transgender** **Other**

**95.** Are you of Hispanic, Latino, or Spanish origin?
**_____No, not of Hispanic, Latino, or Spanish origin**
**_____Yes, Mexican, Mexican American, Chicano**
**_____Yes, Puerto Rican**
**_____Yes, Cuban**
**_____Yes, another Hispanic, Latino, or Spanish origin—please print origin:_____**

***Please turn to the next page to continue the survey.***

**96.** What is your race? Please check one or more.

**_____White/ Caucasian**
**_____Black/African American**
**_____American Indian or Alaskan Native—please provide tribe name: _____**

| | | |
|---|---|---|
| **_____Asian Indian** | **_____Japanese** | **_____Native Hawaiian** |
| **_____Chinese** | **_____Korean** | **_____Guamanian or Chamorro** |
| **_____Filipino** | **_____ Vietnamese** | **_____Samoan** |

**_____Other- please specify: _____**

Please take a moment to review your survey to ensure that it is complete.

***Thank you for participating in this survey!!!!***

***Please return your survey to your instructor or Cassie Dinecola.***

# VITA

Cassie Montagnino Dinecola was born in Fort Worth, Texas, in 1986. She was raised in and currently resides in Baton Rouge, Louisiana. She received her Bachelor of Science in psychology from Louisiana State University in 2008. Cassie volunteered and worked at the Baton Rouge Crisis Intervention Center for seven years. After receiving her bachelor's degree, she spent two years working as a child-specific shadow and behavior therapist for an adolescent with autism spectrum disorder and completed graduate-level coursework in Applied Behavior Analysis through the University of North Texas. In May 2012, Cassie received her Master of Social Work from Louisiana State University, and in July 2012, she began her doctoral studies. While completing her doctoral program, Cassie worked as a graduate assistant and research coordinator at the Office of Social Service Research Development. From July 2015 to February 2017, she served as the inagural Executive Director for Gateway Transition Center, Inc., a nonprofit organiation focused on helping young adults with ASD to develop social, living, and vocational skills for independence. Cassie also owns Dinecola Consulting, LLC, a social service and nonprofit consulting business that specializes in grant writing and program evaluation. Her interests center on autism spectrum disorder, crisis intevention, social work education, and clinicial interventions. She has accepted a position as an Assistant Professor of Professional Practice in the School of Social Work at Louisiana State University beginning in Fall 2018.